

VALUE TO THE INDUSTRY SPONSORS OF PROJECT-BASED DESIGN COURSES

An exploration on the formation of perceived value in the educational context

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Abstract

In the academic discourse on 'perceived value' within the last three decades, a wide variety of both simpler and more complex models exist, but they fail either in their abstraction to sufficiently explain value formulation or in their concreteness to provide a universally applicable model. It has been suggested, that value is highly contextually bound, which would explain the difficulties in creating a sufficiently concrete but universally applicable model. Furthermore, in today's complex economic landscape, companies are increasingly turning to design to create knowledge in collaborative, organizational settings to innovate using open-ended processes. While a multitude of studies have shown how investment in design has favorable returns on the business's success, a firm understanding of how design creates that value is lacking.

The purpose of this thesis is to explore the value in the context of two Master's level, project-based design courses. As a core pillar of their pedagogy, are the real-world experiences achieved by working on a project with industry partners on topics that the companies consider challenging. The sponsorship of the industry partners is vital to the existence of the courses, and therefore ensuring a positive outcome for the sponsors is important. In the almost 30 years combined development the courses have gone through, they have been able to lean on thorough research on both the problem/project based learning and design process fronts to ensure a good student experience, however, the difficulties in both perceived value and design value researches has given little support for the development on the sponsor front.

This thesis is a qualitative study in to five sponsoring companies to better understand the various forms of value – both benefits and sacrifices – that the sponsors experience in the course of the projects. More specifically, as the perceived value literature highlights, value is an entirely subjective contexts, and therefore the subjects of this study are the liaisons, as they have a unique position at the intersection of the courses and the rest of their company. The data consists of 13 interviews.

The results highlight an extensive set of different forms of value – many of which were personal for the liaison or strategic for the company – that fall outside of the traditional focus of the pedagogical approach as well as the design process. One of the more significant insights was that the liaisons utilize the projects to drive some form of strategic change within their companies. Furthermore, the results imply that in addition to the temporal and situational contexts highlighted by the literature, the contextuality of value is a lot more complex as each stakeholder brings in their own contexts to create a multi-dimensional, 'compounded context'.

By highlighting the various potential forms of value for the sponsor, the courses can be adjusted to better match a real-world need, ensuring a more realistic experience for the students, as well as ensuring future collaboration with the industry partners. Furthermore, the results can help the industry partners to be more aware of also the implicit value they are already gaining, and the potential for new forms of value that other companies are managing to realize.

Keywords perceived value, project course, sponsor, liaison, design

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Tiivistelmä

Viimeisten kolmen vuosikymmenen aikana akateemisessa diskurssissa on noussut esiin useita yksinkertaisia ja monimutkaisempia malleja, joilla on pyritty selittämään arvoa. Mallit eivät kuitenkaan ole onnistuneet selittämään ilmiötä, vaan ovat joko liian abstrakteja, eivätkä kykene tästä syystä selittämään riittävällä tarkkuudella arvon muodostumista, tai liian konkreettisia toimiakseen universaaleina malleina. Arvon on esitetty olevan voimakkaasti kontekstisidonnaista, mikä saattaisi selittää yleisesti toimivan mallin kehittämisen vaikeuden. Nykyisessä monitahoisessa yritysmaailmassa yhä useammat yritykset hyödyntävät designmenetelmiä luodakseen organisatioihinsa innovatiivisia, avoimia ja yhteistyöhön perustuvia tiedonluomisprosesseja. Lukuisat tutkimukset ovat osoittaneet designin parantavan yritysten menestystä, mutta ymmärrys siitä, millä tavoin design luo arvoa yrityksille, on puutteellista.

Tämä tutkielma tarkastelee arvon muodostumista kahdella maisteritason projektipohjaisella designkurssilla. Kurssien pedagogian keskiössä on yrityssponsorien kanssa tehtävä yhteistyö, jonka kautta opiskelijat saavat työelämäkokemusta ja yritykset opiskelijoiden kehittämistä ratkaisuja itse haastaviksi kokemuksiinsa ongelmiin. Yrityssponsorien tuki on olennainen osa kursseja, joten on tärkeää varmistaa, että kurssin sponsorointi on heille positiivinen kokemus. Kursseilla on yhteensä lähes kolmekymmenvuotinen historia, jonka aikana niitä on kehitetty ongelmalähtöisen oppimisen ja design-prosessien tutkimukseen pohjautuen mahdollisimman hyvän opiskelukokemuksen takaamiseksi. Sponsorien kokemuksen kehittäminen tutkimuksen pohjalta on kuitenkin ollut haastavaa, sillä tutkimusta arvoon liittyen ei ole juuri ole saatavilla.

Tämä laadullinen tutkimus tutkii viiden yrityssponsorin kokemuksia projektikursseilla ja selvittää, millaista arvoa he kokevat niiltä saavansa, tarkastelemalla sekä hyötyjä että haittoja. Tutkimuskirjallisuudesta selviää, että arvo on luonteeltaan täysin subjektiivista, joten tutkimuksen kohteiksi valittiin yrityksen yhteyshenkilö, joka toimii välikätenä yrityksen ja kurssin välillä. Tutkimusmateriaalina on käytetty 13:a yhteyshenkilöiden kanssa tehtyä haastattelua.

Tuloksissa nousi esiin laaja kirjo erilaisia arvoja, joiden soveltamiseksi ei löydy ratkaisuja perinteisestä pedagogisesta lähestymistavasta ja design-prosessista ja joista monet olivat joko henkilökohtaisesti tärkeitä yhteyshenkilölle tai strategisesti merkittäviä yritykselle. Yksi merkittävimmistä löydöksistä oli se, että yhteyshenkilöt hyödyntävät projekteja ajaessaan haluamiaan muutoksia yrityksen sisällä. Tuloksista selviää myös, että kirjallisuudessa mainittujen ajallisen ja tilansidonnaisen kontekstin lisäksi, jokainen projektiin osallistuva tuo mukanaan oman kontekstinsa.

Kurssien muodostaman arvon ymmärtäminen auttaa kehittämään kursseja paremmin työelämää ja siten opiskelijoiden tarpeita vastaaviksi, varmistaa yliopiston yhteistyön jatkumisen sponsorien kanssa ja auttaa sponsoreita ymmärtämään laajemmin kaikkia niitä hyötyjä, joita kursseilla on tarjota.

Avainsanat arvo, design, yrityssponsori, projektikurssi, suunnittelu

Table of Contents

1. Introduction	1
2. Literature Review.....	5
2.1 Value in Marketing Literature	5
Monroe's 'Quality-Price Relationship'	6
Gutman's 'Means-End Theory'	6
Zeithaml's 'Means-End Theory'	6
Woodruff and Gardial's 'Means-End Theory'	7
Haar, Kemp, and Omata's 'Intended Value Map'	8
Holbrooke and Hirschman's, and Babin's 'Hedonic Value'	9
Hartman's and Mattson's three-dimensional value model	9
Sheth et al. 'Consumption-value Theory'	9
Sweeney and Soutar's 'PERVAL' scale.....	10
Holbrook's 'Typology of Customer Value'	11
Summary of Value in Marketing Literature.....	12
2.2 Formulating a Framework Based on the Value Literature	12
2.3 Design literature.....	17
Higher Levels of Design	18
Practitioner Models of Design in Business	20
Summary of the Design Literature.....	22
2.4 Research Questions.....	22
3. Methodology.....	24
3.1 Research Paradigm	24
3.2 Research Design	25
Interaction Between the Theory and the Research Design	25
Liaisons as the Object of the Research	26
Selecting the Courses and Companies	27
Description of the Courses and Companies	28
Data Collection	31
Coding.....	32
4. Findings	34
4.1 Overview of Findings.....	36

4.2 Benefits - Strategic Development.....	38
Driving Change.....	39
Developing Human Capital.....	47
4.3 Benefits - Nature of the Project Outcomes	55
Novelty.....	55
Validity.....	60
Concreteness	63
4.4 Benefits - Stakeholders and Ecosystems	66
Stakeholder Understanding and Relations	66
Ecosystem Understanding.....	70
4.5 Benefits - Other Benefits	73
Inspiration	73
Social Impact.....	75
Credibility	78
4.6 Sacrifices	80
Money	81
Time	83
5. Discussion	87
5.1 Theoretical Implications.....	87
Compounded Contextuality	87
The Nature of Value.....	89
5.2 Practical Implications.....	91
Broad Set of Sponsor Values	91
Liaison Focus	93
Strategic Development.....	93
Project Outcome: Novelty, Validity, Concreteness	95
Sponsor Workload.....	97
5.3. Limitations	98
5.4 Conclusion and Further Research.....	99
6. Bibliography.....	102
7. Appendices	108

List of Figures

Figure 1 - Holbrook's Typology of Customer Value 11

Figure 2 - Summary of literature that informed the formulation of the 6 natures of value. 17

Figure 3 - Liaisons unique position between the course and the rest of their company 27

Figure 4 - The Gioia Data Structure of the findings 35

1. Introduction

Understanding value is a key factor in strategic management (Mizik & Jacobson, 2003; Spiteri & Dion, 2004) and creation of value for the customers is the key to sustaining competitive advantage and company success (Slater, 1997, Want et al., 2004). However, when looking at the academic discussion on value – one that can be argued to be old as the concept of economics itself and a one that has seen contributions by the likes of Aristotle, Plato, Karl Marx, and Adam Smith – the history on the discourse on hints at how convoluted and complex the concept of value is. Even in the more modern streams of discourse that can be tracked back three decades, shared consensus are limited. The nature of value has been described as “nebulous” (Sánchez-Fernández & Iniesta-Bonillo, 2007), “complex” (Lapierre, 2000), and “multifaceted” (Babin, Darden, & Griffin, 1994), indicating that further research is required into explaining the nature, form, and dimensions of value.

There are, however, some definitions that have managed to gain wider approval within the stream, such as Zeithaml (1988, p. 14) defining value as an “...overall assessment of the utility of a product based on perceptions of what is received and what is given”. Zeithaml’s and other similar uni-dimensional, simplified definitions on value have at the same time managed to gain some wider approval but also significant critique. Many authors argue, that in their simplicity, they fail to adequately explain the full concept of an individual’s value judgement (e.g. Mattsson, 1991; Sweeney & Soutar, 2001). At the same time, that simplicity and abstraction enable them to, at least partially, capture the essence of what is commonly agreed as the concept of value.

There are various scholars (Babin et al., 1994; Haar, Kemp, & Omta, 1999; Holbrook, 1996; Holbrook & Hirschman, 1982; Mattsson, 1991; Sheth, Newman, & Gross, 1991a; Sweeney & Soutar, 2001; Woodruff & Gardial, 1996), who have constructed complex, multi-dimensional conceptualizations of value that succeed in conceptualizing value in one way or another, but they are so complex in nature that it has been difficult so far to bring the theories together and form a unified conceptualization.

Between the simpler and more complex definitions and conceptualizations of value, two fundamental aspects are very broadly accepted: an existence of a trade-off, and that value is subjective or ‘perceived’. The trade-off has been discussed with a variety of different terms, with nuances to their

meanings, but the essence is the existence of both benefits and sacrifices in the value judgement, for example: something positive and something negative (Sheth et al., 1991a), benefits and costs (Holbrook, 1986), what is received and what is given (Zeithaml, 1988). The subjectivity of the value judgement is highly inherent in the modern stream of value literature, which studies the ‘perceived value’ (e.g. Gutman, 1982; Haar et al., 1999; Holbrook, 1996; Mattsson, 1991; Monroe, 1990; Zeithaml, 1988). The essence behind the subjectivity is that absolute measurement of value is not possible, but instead is always based on a perspective of an individual.

Furthermore, many authors discuss the importance of the current context as an important contributor to the value judgement. For example, Zeithaml theorized that the “perception of the value depends of the frame of reference” (1998, p.15). Similarly, Sheth et al. (1991b) posited that value is a “result of a specific situation or a set of circumstances” (p. 162), for example the value of an ambulance service. Beyond the subjective, trade-off and contextual natures of value, the frameworks on value begin to diverge to the point where the more recent and more complex conceptualizations have trouble explaining value in practical contexts.

The purpose of this paper is to study two university courses and how they create value to the companies that sponsor them. The concept behind the courses is that the companies provide students with complex real-life business problems which the students will work on to find possible solutions, while receiving pedagogical support from the teaching staff. These kinds of industry-sponsored projects give the students a unique opportunity to get meaningful real-life experiences during their studies (Mikkonen, Tuulos, & Björklund, 2018; Reinikainen & Fallast, 2008). While the continued existence of these courses indicates a need from the industry side, there is limited, or perhaps even non-existent, research on the value these kinds of projects provide to the sponsors. With the university providing a service (much akin to a consultancy project) in exchange for money and time from the sponsors, the relationship has a lot in common with how companies operate. As the literature recognizes the importance of understanding the value provided to the customers, it can be seen that it is crucial for these courses to understand the value they are providing to the sponsoring companies, in order to ensure the continued collaboration with the industry.

The fundamental methodology and the educational scope of the courses is centered around design approach, which also makes it critical to consider design literature, when exploring their value. The significance of design to the sponsoring companies and the students comes from its ability to solve complex, open-ended, ill-defined, and ambiguous problems (Goldschmidt, 1997). It is considered

increasingly important to create knowledge in complex and collaborative organizational settings where you innovate using open-ended and improvisational group processes (Sawyer, 2006). During the past decades, various reports have established the positive influence of design on both project and company outcomes (e.g. Candi, Gemser, & van den Ende, 2010; SVID, 2008; The Design Council, 2007). For example, Design Management Institute's Design Value Index has shown number of years in a row how a portfolio of companies that invest in design manage to outperform the S&P500 (Rae, 2016).

While the focus of marketing literature on value has been on – what can only be called the meta level of – the nature of value, essentially answering the question of “what is value”, the focus in the design literature has been on the development of the approach, which leads to the literature better answering the question “how can design be valuable”. Much of the early literature on design has focused on understanding and codifying the tools and methods that designers have used in the past to solve complex problems (Elsbach & Stigliani, 2018; Matthews & Wrigley, 2011) to create processes that can be used more broadly in functions that were traditionally not design-centric (Brown, 2009). In essence, this means transferring design from the realm of form-giving or aesthetics, to functions such as marketing, product design, and research and development.

Recently, the research has also started focusing on even more broadly applicable forms of design, touching areas such as strategy and culture, that bring design to encompass the whole company. The research has suggested that by utilizing the design approach as a core in strategic planning, companies become more able to address complex and open-ended challenges (e.g. Dorst, 2011). Furthermore, early research has also theorized that by incorporating design as a part of the corporate culture, the implementation of design approaches might become easier (e.g. Elsbach & Stigliani, 2018). Despite the research showing that investment to design can have favorable outcomes for companies, and highlighting how design can lead to that, a more thorough exploration to this field is still relatively new (Dorst, 2011), and it is unlikely that a comprehensive understanding of the value of design has been formed.

The primary purpose of this paper is to create better understanding of what is the value the companies gain from this collaboration that justifies their participation in these project courses. To that end, the value literature under the marketing field provides a sufficiently open basis for the literary framework, while the design literature functions to explain some of the forms of value that emerge from the data. This paper will focus on perspective the liaison(s) from the sponsoring companies who is/are in

charge of the project, both to the capacity to collaborate with the student team, as well as facilitate and communicate the progress and results of the project with the rest of the company. As in line with the literature, this paper does not attempt to quantify any absolute value for these projects, but focuses on the subjective perception of the liaison(s), who is/are in a critical role in justifying the sponsorship of these projects. Furthermore, this paper will explore both the benefits and sacrifices imposed by the participation of these projects, while limiting the exploration to the context of industry sponsored courses that utilize the design approach as the core methodology, and where the students are in charge of solving complex, open-ended, real-world challenges.

Therefore, main research question is: **“What are the various benefits and sacrifices as perceived by the liaisons of the sponsoring companies of project-based design courses?”**

2. Literature Review

The review of the literature for this paper is divided into two distinct segments: the value in marketing literature, and the design literature. The former will serve as the core theoretical framework upon which the research methodology of this paper will be based. It reviews various streams of value literature to find a shared consensus on a level that is sufficiently abstract to serve as a foundation to an open exploration to the value of the industry sponsored, project-based design courses. The design literature review will provide a separate framework to inform and give context to the core findings of this paper.

2.1 Value in Marketing Literature

The role of value emerged as a key business issue and a subject of extensive academic research in the 1990s and has since continued its prominence through the following decades. Despite the attention it has received, the concept of value is one of the most overused and misused concepts in the management literature (Khalifa, 2004). Various authors in marketing literature have offered definitions, but one of the most cited is by Zeithaml (1988, p. 14) as follows: "... the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given." There are two key highlights in Zeithaml's definition, which are also well established in many of the other prevalent definitions. First, the focus is on the perceptions of the consumer, instead of some absolute truth of provided value. This is also highlighted by the fact that most of the modern literature is specified to study "perceived value". Second, it focuses on an idea of a simplified formula of 'value = benefits - sacrifices'.

While this simplified concept is the only real consensus in the academic community on the topic, its overly simplistic nature has also been the core critique that has spun off few of the key literary streams in the marketing literature. As per Sánchez-Fernández and Iniesta-Bonillo (2007), the various literary streams can be divided into two sections: the uni-dimensional view on value, where you can simply ask subjects to evaluate the value provided, and the multi-dimensional, which has a wider range of variables. The purpose of the following sections is to review the various streams of uni- and multi-dimensional literature and discuss their applicability to define the value created in the context of student conducted innovation consulting projects.

Monroe's 'Quality-Price Relationship'

Monroe's work on price (Monroe & Krishnan, 1985) can be highlighted as one of the starting points of the perceived value literature stream. He contributed various works focused on a narrower topic of quality-price relationship (Dodds & Monroe, 1985; Monroe & Chapman, 1987; Monroe & Krishnan, 1985) where it was posited that quality is highly subjective and external cues such as price and brand will influence the perception of quality. Even though quality and value are considered distinct concepts (Bolton & Drew, 1991; Dodds & Monroe, 1985; Monroe & Krishnan, 1985), later works highlight that they both are personal judgements that are context-dependent (Rust & Oliver, 1994; Zeithaml, 1988).

The research also resulted to a definition by Dodds et al. (1991, p. 308) where they defined value as a "... cognitive trade-off between perceptions of quality and sacrifice". And while the original works by Monroe linked price strictly with money, the full conceptualization of price would include other losses such as time and effort (Monroe & Krishnan, 1985). To bring clarity to the terminology, Dodds et al. (1991) and most of the later works separated this full conceptualization of price as 'sacrifices' or 'costs'.

Gutman's 'Means-End Theory'

Meanwhile, Gutman's (1982) means-end theory focused more directly on value, where he argues that consumer purchasing behavior is influenced by three things: attributes of the product, perceived consequences of consumption, and the personal values of the consumer. The core idea of the model is that consumers are goal-oriented and that they acquire goods and services to fulfill personal goals. Gutman's categorization on 'consequences' is quite all-encompassing and somewhat abstract. He argues that they can be physical or psychological, referring to potential hedonic value, and that it can be both desirable and undesirable, referring to the trade-off nature of value. The main point he makes, in addition to the subjectivity of both the consumer's values as well as their perception on the consequences of consumption, is that the value to the user is not an inherent attribute of the product, but its ability to fulfill a user need.

Zeithaml's 'Means-End Theory'

In 1988, Zeithaml updated the means-end theory by utilizing the model proposed by Dodds and Monroe (1985). Zeithaml (1988, p. 13) theorized four definitions for value: "Value is low price", "Value is whatever I want from a product", "Value is quality I get for the price I pay", and "Value is

what I get for what I give". In the end, she concludes that the four definitions can be concluded as a single definition of "perceived value is consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p. 14). The definition remained abstract by avoiding using any of the terms that were themselves already poorly defined such as quality, worth, benefits, price, or sacrifices (Woodruff, 1997), which gained it wide acceptance. Likewise, while the original work focused on the perceived nature of quality and price (Sánchez-Fernández & Iniesta-Bonillo, 2007), the abstraction present in the definition has allowed it to remain relevant and accurate to more broad theorizations of value. Zeithaml's model cemented the idea that had also emerged in Monroe's, Dodd's, and Gutman's works, where value is determined by the subjective perceptions of value, quality, and price, instead of objectives attributes such as actual price or actual quality.

In the article, Zeithaml (1988) brings forward and utilizes the concept of intrinsic and extrinsic cues (Olson & Jacoby, 1972; Olson, 1977) as a dichotomy to value-creating attributes. In the concept, intrinsic cues are attributes inherent to the product, where changing them would change the nature of, and which are consumed along with, the product (such as flavor or color). Extrinsic cues, on the other hand, are attributes related to, but not physically a part of, the product (such as price or brand). Zeithaml states that while the dichotomy is useful in the discussion and conceptualization, she does acknowledge that it has conceptual difficulties, as well as other competing categorizations. However, these alternatives have similar conceptual difficulties, and the extrinsic-intrinsic dichotomy is widely used in the academic community.

Number of research papers have been contributing to Zeithaml's model the following years. Bolton and Drew (Bolton & Drew, 1991) formulated a model that corroborated her suggestions on how value is context-specific, which then Brady and Robertson (Brady & Robertson, 1999) also confirmed, also adding that value is not only context but also individual specific. Kerin et al. (1992) concluded that shopping experience had a bigger impact on customer value than product attributes. Furthermore, Spreng et al. (1993) suggested that expectations, desires, and perceptions of performance had a significant impact on customer perceived value.

Woodruff and Gardial's 'Means-End Theory'

Woodruff and Gardial (1996), supported the idea that value is more than attributes of the product, and further adapted the means-end model by defining three distinct hierarchical levels. On the highest,

and most abstract, level are the customer's goals and purposes. The customers use those goals and purposes to give meaning to various potential consequences (middle level), and those meaningful consequences inform the customers to evaluate product attributes (lowest level).

Likewise, Woodruff and Gardian (1996) argued that on the lower level of hierarchy, changes are more likely, and as you go higher up in the hierarchy, things are more stable. However, Woodruff (Woodruff, 1997) also argued that at all levels, the value judgements are constrained by the situation at hand. These situations change over time and context, and due to certain 'trigger' situations, which all are experienced individually.

Woodruff (1997, p. 142) also offered a definition for value as "customer's perceived preference for an evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations". While his definition includes it under the 'consequences', he puts a lot less emphasis on the notion that in one way or another value is a trade-off between 'gets' and 'gives'. Woodruff (1997) also makes a distinction between desired value and received value, where he argues that instead of customers using the means-end structure only to evaluate desired end states that lead from purchase and utilization, the customers use the same structure to evaluate realized value.

Haar, Kemp, and Omata's 'Intended Value Map'

Haar et al. (1999), developed a model which focuses on the lost value in the value creation chain through a set of different 'maps', which describe the value from different perspectives and contexts, and 'gaps' which describe the discrepancies between these maps. These gaps are:

- 'information gap' due to company's inability to accurately understand consumer's desires
- 'design gap' due constraints limiting their ability to offer a solution that matches their view on customer desires
- 'compromise gap' due to the market not having a solution that perfectly matches the customers desires
- 'satisfaction gap' due to how the customers expected value was compared to the received value.

This model highlights how already in the purchase decision phase customers have to compromise in how effectively their desires and preferences will be fulfilled by the available solutions. Furthermore, after expectations regarding the received value have been set, the actual received value differ even further from their desired state. They also highlight that value of a product is not stand alone, but comparative to the competing value propositions from competitors (Haar et al., 1999).

Holbrooke and Hirschman's, and Babin's 'Hedonic Value'

Holbrook and Hirschman (1982) observed that much of the literature thus far had focused on the utility value and largely ignored the hedonic aspects of value, and Holbrook (Holbrook, 1986) added that, in doing so, fails to account for various intangible and emotional benefits and costs. In 1994, Babin et al. theorized that consumption of goods and services also produces hedonic value, and separated the consumers' perception of value to two dimensions (as cited by Sánchez-Fernández & Iniesta-Bonillo, 2007):

- 'utilitarian value': instrumental, task-related, rational, functional, cognitive, and a 'means to an end'
- 'hedonic value': reflecting the entertainment and emotional worth of shopping; non-instrumental, experiential, and affective.

There are a number of studies supporting the view of dividing value into hedonic and utilitarian e.g. Babin and Kim (2001), Babin and Babin (2001), Chiu et al. (2005), Lee and Overby (2004).

Hartman's and Mattson's three-dimensional value model

Already in 1967, Hartman described value in three terms. 'Extrinsic' which refers to the practical value as a 'means to an end'; 'intrinsic' which refers to the emotional value; and 'systematic' which refers to the rational interactions of the concepts, such as tradeoffs. In 1991, Mattsson reframed Hartman's concepts: 'Intrinsic' as 'Emotional' (E), 'External' as 'Practical' (P), and 'Systematic' as 'Logical' (L). He posited that in consumer purchase behavior, the impact is $E > P > L$, putting significantly less emphasis on the trade-off part in the value formulation. The three-dimensional value model was adapted and corroborated by a number of papers (Danaher & Mattsson, 1994, 1998; De Ruyter, Bloemer, & Peeters, 1997; Huber, Herrmann, & Braunstein, 2000; Lemmink, De Ruyter, & Wetzels, 1998).

Sheth et al. 'Consumption-value Theory'

The 'consumption-value theory' (Sheth et al. 1991a; Sheth et al. 1991b) states that the consumer choice – to buy or not to buy – includes five distinct forms of value:

- Functional – perceived utility of the functional, utilitarian, and physical attributes
- Social – perceived utility from association with social groups
- Emotional – perceived utility from capacity to arouse feelings or affective states
- Epistemic – perceived utility from capacity to arouse curiosity, provide novelty, and satisfy desire for knowledge
- Conditional – perceived utility as a result of specific situation or set of circumstances

The model also stated that consumer decision is based on multiple forms of value at once, that the forms of value are independent from each other, and that they can be positive or negative. A number of studies have followed by contributing to the consumption-value theory.

Sweeny et al (1996) adapted three of the forms of value – functional, social and emotional – but omitted epistemic and conditional. This was because “epistemic and conditional values are transient and less enduring than the other three consumption value aspects and are more relevant to single rather than repeat purchases” (Sweeney et al., 1996, p. 3) and because of practical limitations regarding the interviews. The research argued that the emotional and social forms of value are not independent as Seth et al. (1991a) had argued, but otherwise agreed with the evaluation on the three forms of value. Williams and Soutar (2000) also agreed based on their research that four of the forms of value – functional, emotional, social, and epistemic – are accurate based on their research, but added that conditional value would not fit in nicely.

Sweeney and Soutar’s ‘PERVAL’ scale

In 2001, Sweeney and Soutar built on the consumption-value theory and posited that their new model, the ‘PERVAL’ scale, which would more accurately describe consumer value perceptions. They argued that conditional form of value was not warranted and theorized that the conditional value is likely a modifier to the other forms of value. They also excluded epistemic value from their study, as the research focused on “durable goods” instead of experiential or novel items. They argued, that as Sheth et al. (Sheth, J. N., Newman, B. I., Gross, 1991b) formulated function as reliability, durability, and price, and that the first two are often seen as components of quality, function can be effectively described as quality and price. Furthermore, as quality is a positive aspect and price a negative aspect, they are often seen to have different influence on value, and should thus be separate dimensions.

Wang et al. (2004) adapted the ‘PERVAL’ scale but expanded on it by including other sacrifices besides price, such as time, effort, and energy. All dimensions were found to indicate an influence on perceived value. Pura (2005) also contributed to the scale by adapting it to the electronic service context by replacing ‘quality’ by ‘convenience’ and ‘price’ by ‘monetary value’ and found relevance for all of the forms of value. He also included ‘conditional’ and ‘epistemic’ as different level constructs and found out that conditional value has a significant and positive effect on the other values while epistemic value had a positive effect only on emotional and social values.

Holbrook's 'Typology of Customer Value'

Holbrook defined customer value as an "Interactive Relativistic Preference Experience" (1986, p. 138):

- Interactive – interaction between a consumer and a product; depends on the characteristics of some physical or mental object, but requires for someone to appreciate it
- Relativistic – comprises of three things:
 - comparative – one must make utility comparisons between objects
 - personal – varies from one person to another
 - situational – the judgement is highly context specific
- Preference – evaluative judgement; predisposition; attitude
- Experience – value exists in the consumption experience, not purchase experience

Holbrook then proceeds to suggest three dichotomies for value:

- Extrinsic VS Intrinsic
 - Extrinsic – instrumental as a 'means to an end'
 - Intrinsic – consumption experience valuable on its own; consumption is an end in itself
- Self-oriented VS Other-oriented
 - Self-oriented – when the individual prizes selfishly or for their own sake
 - Other-oriented – beyond the self (friends, family, planet, deity)
- Active VS Reactive
 - Active – when it entails physical or mental manipulation of some tangible or intangible object; things done by the individual
 - Reactive – from apprehending, appreciating, responding to something; things done to the individual

By combining the three dichotomies into a 2x2x2 matrix, Holbrook (1999) formed the 'typology of consumer value', which has 8 categorizations for the form of value:

		Extrinsic	Intrinsic
Self-oriented	Active	Efficiency (convenience)	Play (fun)
	Reactive	Excellence (quality)	Aesthetics (beauty)
Other-oriented	Active	Status (success, impression management)	Ethics (virtue, justice, morality)
	Reactive	Esteem (reputation, materialism, possessions)	Spirituality (faith, ecstasy, rapture, sacredness, magic)

Figure 1 - Holbrook's Typology of Customer Value

Holbrook highlighted, that all of the types of perceived value are inter-related and all of them are present at a varying degree in a single consumption experience.

Summary of Value in Marketing Literature

Originally, the consumer choices were seen to be driven by logical, rational, and cognitive judgements to maximize benefits while constrained by price. While first theories by Monroe limited this to quality and price, it was later suggested by Zeithaml to include all benefits and sacrifices incurred by the attributes of a product, thus forming the cognitive means-end theory. These models are widely accepted for their simplicity, but at the same time are criticized for not adequately explaining the consumer's decision-making.

A number of models and theories emerged to address the intangible and emotional influences in the value judgement. While multiple authors agreed on the need for a broader approach, the proposed models have generated considerable debate among researchers because they are conceptually ambiguous and confound relationships between their dimensions and other constructs (Sánchez-Fernández & Iniesta-Bonillo, 2007). While all the presented models provide relevant contributions to the field, the broader models are so complex that they are inherently not complementary, making it difficult to compound a consensus of the literature.

2.2 Formulating a Framework Based on the Value Literature

As has been elaborated throughout the Marketing Literature section, the consensus in the marketing literature is on a very abstract level. While the need for more concrete models exists, the academic community has failed to reach a broadly accepted framework for value. In the similar vein, when attempting to identify or combine a model that functions to describe the value for the sponsors in the project-based design courses, the models seem to poorly describe the actual forms of value provided. Indeed, as Zeithaml ponders, that value is so tied to the context that it “may help explain the diversity of meanings of value” (1988, p. 15).

The topic of contextuality emerged in almost all of the main literature streams (Haar et al., 1999; Holbrook, 1999; Holbrook & Hirschman, 1982; Mattsson, 1991; Sheth et al., 1991b; Sweeney & Soutar, 2001; Woodruff, 1997). Indeed, when approaching value research empirically, there is notion that value “contextually bound” (Grönroos & Voima, 2013, p. 146) and that any concrete description of value need to be evaluated fully in that context. Due to this contextuality, most of the existing frameworks, especially as the majority of the research is founded in consumer and marketing research, have the risk of applying poorly outside the context they were formed in.

However, as a large part of the literature is focused on the nature of the value, a beneficial framework can be adopted or constructed. These frameworks describing the nature of value can serve as a starting point for the exploration of the concrete forms of value within a different context. While widely accepted frameworks to the nature of value exist, for example, the Holbrook's Typology of Customer Value (Holbrook, 1999), a more open framework was deemed necessary to explore the value in the context of this paper. This section will draw from the various streams of marketing literature to formulate a broad framework, which will then inform the methodology and approach in to exploring the value in the context of value for the sponsors in project-based design courses.

Subjective

The subjectivity of the value judgement is highly ingrained in the modern concept of value, to the point where the subject of study of the literature is the 'perceived value' (e.g. Gutman, 1982; Haar et al., 1999; Holbrook, 1996; Holbrook & Hirschman, 1982; Mattsson, 1991; Monroe, 1990; Sheth et al., 1991; Sweeney & Soutar, 2001; Woodruff, 1997; Zeithaml, 1988). The underlying premise is that one cannot attain an absolute measurement for 'value', but instead it is always needs to be observed through the perspective of an individual.

Value is Subjective. It is not an absolute value, but an individual's subjective judgement. It is someone's perspective.

Trade-Off

Another central and defining concept in the modern value literature focused around some form of a trade-off between some form of benefits and some form of sacrifices. This trade-off has been a core building block of all the modern literature stream in one form or another, such as:

- 'quality' and 'sacrifices' (Haar et al., 1999; Monroe & Krishnan, 1985)
- 'quality' and 'price' (Sweeney & Soutar, 2001)
- 'consequences' that can be 'desireable' and 'undesireable' (Gutman, 1982)
- 'what is received' and 'what is given' (Woodruff, 1997; Zeithaml, 1988)
- 'gets' and 'gives' (Woodruff, 1997; Zeithaml, 1988)
- 'benefits' and 'costs' (Holbrook, 1986)
- each value dimension can have 'positive inclinations' and 'negative inclinations' (Mattsson, 1991)
- forms of value can be 'positive' or 'negative' (Sheth et al., 1991a)

Zeithaml's definition of the trade-off as 'what it received and what is given' is one the most widely accepted definitions due to the broadness of the definition. Some of the more specific terms used can

be misunderstood, for example, terms such as ‘price’ and ‘cost’ are too easily linked to the monetary forms, when the authors in most of the cases meant a wider concept (Woodruff, 1997). To avoid similar confusion, this paper will use the broadest of the suggested terms, ‘benefits’ for the positive and ‘sacrifices’ for the negative aspects of the value trade-off.

Value is a Trade-Off. It is a comparison between a wide variety of benefits and sacrifices.

Personal

As a consequence of the subjective nature of value, it is also proposed by Gutman that the individuals personal values play a part in the value judgement (1982). Woodruff and Gardial (1996) also posited that as a part of the value on the most abstract level, are the customers goals and purposes which give meaning to the value judgment. Holbrook and Hirschman (1982) took a more detailed view by highlighting some aspects of the individuals differences in the value judgement. They highlighted aspects such as life-style, sensation seeking, personality, arousal seeking and religion. In Holbrook’s ‘Typology of Customer Value’ (Holbrook, 1986) he also posited, that value is among other things ‘relativistic’ and defined as a sub-category that it is ‘personal’, but outside of saying that it varies from person to person, does not define exactly what it means.

Holbrook and Hirschman’s as well as Woodruff and Gardial’s definitions both take a narrower stance by attempting to define the source of the what differentiates the individual’s personal value judgements. Holbrook’s definition about value being personal, is a good, broad starting point for defining the nature of value. However, utilizing it on its own creates a too ambiguous framework for this context so therefore further defining it by utilizing Gutman’s proposition about individual’s values impacting the value judgement were utilized. Therefore:

Value is Personal. It is based on individual’s values.

Contextual

The value literature also has a strong consensus that value is highly context specific. Zeithaml (1988), for example, stated that the contextuality might “help explain the diversity of meanings of value” (p.15) and theorized that the “perception of the value depends on the frame of reference” (p.15). Holbrook also premised that the value judgement is situational and it “depends on the context in which the evaluative judgement is made” (1999, p. 7). Similarly Sheth et al. (1991b) highlighted how

value is conditional, and a “result of a specific situation or a set of circumstances” (p. 162), but also added that it can be more extreme (e.g. ambulance services) or more subtle (e.g. popcorn at the movies). Finally, Woodruff (1997) argued that the value judgments are constrained by the situation at hand and that it will change over time. Most other authors have similar notions about the contextuality of value (e.g. Haar et al., 1999; Holbrook & Hirschman, 1982; Mattsson, 1991; Sheth et al., 1991b; Sweeney & Soutar, 2001). Therefore:

Value is Contextual. It is dependent on the situation, time, frame of reference. It is highly context specific.

Hedonic

Already in 1982, Holbrook and Hirschman observed that by ignoring the hedonic aspects of value, one fails to account for the various intangible and emotional aspects of the value judgement. Later on Babin et al. (1994) supported this notion by characterizing hedonic value as entertaining, emotional, non-instrumental, experiential, and affective. Gutman (1982) theorized that value can be physical or psychological. Mattson (1991) directly referred to emotional value as one of the 3 key aspects of value and posited that emotional is the most important aspect in the purchasing decision. Sheth et al. (1991b) also included Emotional as one of the 5 key aspects of value, defining it as the “perceived utility ... from ... capacity to arouse feelings or affective states” (p. 161) and Sweeney and Soutar (2001) based their model on Sheth et al.’s work and used an almost identical definition. Finally, Holbrook’s Typology of Customer (1999) value also added the intrinsic as one component of value formation defining that the consumption process can be valuable on its own. Holbrook and Hirschman offered the broadest definition to hedonic value in their original article. Most of the following definitions offer definitions as to what emotional means, adding little value to the definition in this paper’s context. However, Babin’s definition of the hedonic value being experiential, as well as Holbooks later definition that the hedonism, help in broadening the understanding of what hedonic value is.

Value is hedonic. It has emotional, experiential, intrinsic, and intangible elements.

Comparative

The literature’s stance of comparativeness is a difficult one. While the existence of competition in the purchase decision process that much of the literature streams attempt to describe, only a few of

the theories explicitly include it as a part of the value judgement. Haar et al. (1999), for example, states that providing high value alone is not enough, because the “purchase decision is based on a choice between the competing offers in the market place” (p. 3). Similarly, Holbrook (1986), defined value as ‘relativistic’ stating that in addition to value being personal and situational, it is also comparative, where “one must make an utility comparison between objects” (p. 140). Based on these two definitions, we can conclude that:

Value is Comparative. It is judged in comparison to alternatives.

Summary of the framework

From the literature reviewed in this section, a framework with six distinct and most fundamental natures of value have been formulated in format that is sufficiently broad to inform, but not limit, the exploration of value in contexts which are far removed from the contexts the literature was originally designed to describe. Figure 2 shows a visual summary of the reviewed literature that has informed the formation of the six natures of value. Furthermore, the six natures of value are defined as:

- **Subjective** – It is not an absolute value, but an individual’s subjective judgement. It is someone’s perspective.
- **Trade-off** – It is a comparison between a wide variety of benefits and sacrifices.
- **Personal** – It is based on individual’s values.
- **Contextual** – It is dependent on the situation, time, frame of reference. It is highly context specific.
- **Hedonic** – It has emotional, experiential, intrinsic, and intangible elements.
- **Comparative** – It is judged in comparison to alternatives.

Nature of Value	Subjective	Trade-off	Personal	Contextual	Hedonic	Comparative
Monroe						
Gutman						
Zeithaml						
Woodruff and Gardial						
van der Haar et al.						
Holbrook and Hirschman						
Hartman and Mattson						
Sheth et al.						
Sweeney and Soutar						
Holbrook						

Figure 2 - Summary of literature that informed the formulation of the 6 natures of value.
Light grey = amended later, not in original study

2.3 Design literature

Under design literature, the focus on value has been on how design can provide value, instead of attempting to conceptualize what is value, therefore leading to a conceptualization that is not as established as under marketing literature. However, due to the business potential of using design to solve complex business problems (e.g. Dorst, 2011; Kolko, 2015) and creating competitive advantage (e.g. Buchanan, 1992), the management literature has explored both if there are measurable benefits to applying design and what are some of the possible benefits of design. Management research has consistently shown that design can be beneficial for business through increased growth and profitability (e.g. Gemser & Leendersb, 2001), stock prices (e.g. Hertenstein, Platt, & Veryzer, 2005), and capability to innovate (e.g. Menguc, Auh, & Yannopoulos, 2014). In addition to academic research, multiple design institutions have also made connections between design and positive stock growth, such as the Design Management Institute (2015) showing 217% increase in stock prices of

design centric companies over a 10 year period(Rae, 2016), British Design Council (2007) similarly showing over 200% growth, and Danish Design Centre (2003) showing companies investing in design having a 22%-40% higher turnovers.

In line with the purpose of this paper, there is also research on *how* design manages to be so beneficial. Much of the early research on design has focused understanding and codifying the tools, methods and ways of working that enables designers to solve the complex business problems that companies are facing (Elsbach & Stigliani, 2018; Matthews & Wrigley, 2011). Eventually, much of the research on the designer's approach to solving complex business problems lead to the emergence of a discipline called "design thinking" (Elsbach & Stigliani, 2018). Originally the research community left the field broad and open-ended to avoid oversimplifying the design approach, however as businesses started seeing the value of design, a need for cleared conceptualizations emerged (Dorst, 2011). The discipline has since then received a lot of attention from both researchers as well as practitioners, eventually leading to a state where design thinking and the processes that belong to it have a wide variety of different yet overlapping definitions and conceptualizations. As an example of the approach, Brown (2008) defines it as "creative human-centered discovery process followed by iterative cycles of prototyping, testing, and refinement" (p. 88), and highlights it's non-linear approach where the various tools are used to explore 'three spaces': 'inspiration', 'ideation', and 'implementation'. Within those spaces, Brown highlights tools such as problem redefinition, prototyping, observation, rapid iteration, brainstorming and visualizing ideas. The result of much of the early research into design was that it codified the creative tools and processes that were traditionally used in the design functions of the company (e.g. focusing on the aesthetic aspects of a product), so that they could now be used more broadly across functions, and earlier in the product and service development process (e.g. Brown, 2009). Essentially the domain of design had expanded from being the expertise within a single or a few functions to a set of processes and methods that could be utilized across various disciplines and functions.

Higher Levels of Design

As a response to the practitioners needs for clear understanding of the design approach, much of the research has focused on practical methods and tools to solve business problems, however many early contributors to the field highlighted that design can best be utilized "by 'infusing' design into the fabrics and cultures of these organizations" (Elsbach & Stigliani, 2018, p. 2275). Indeed, behind much of the process, method and tool research discourse, a separate discourse that calls for consideration

for these ‘higher levels of design’ can be found. As the discourse of these higher levels of design has received less focus, a shared understanding of the terminology is still fluid. Some of the research discusses design as a strategy approach (e.g. Brown, 2009; Dorst, 2011), while some of it discusses it as culture (e.g. Elsbach & Stigliani, 2018), and some discuss both (e.g. Kolko, 2015).

Brown (2008) provides the most direct route from the design processes to the strategic form of design by arguing that by including design methods earlier in the product and service development process to “create ideas that better meet consumers’ needs and desires ... is strategic and leads to dramatic new forms of value”. Brown also emphasizes importance of the organization allowing the design approach influence strategy, which implies a potential overlap with having an appropriate organizational culture. Dorst (2011) on the other hand approaches design as a part of strategy from its ability to solve complex problems. Once companies start running into complex problems, they will first attempt to solve them by means that require least effort and fewest resources, meaning their traditional business logic. However, if their approach does not work, they will use one of few approaches: (1) they will attempt to apply approaches/solutions that are not typically used within the problem space, from other areas of their operations, (2) they might hire external consultants to bring new approaches/solutions, that might end up superficially applied, or become an integral part of the organization, (3) they will develop new approaches/solutions from scratch by broad exploration outside their usual problem space. Dorst (2011) then argues that through the successful solving of these open, complex problems the organizations will be able to adopt the ‘designerly ability’ to solving complex problems. In essence, Dorst (2011) argues that the core in design is the ‘abduction logic’ and separates it strongly from any specific processes or methods, while tying it strongly with the strategic decision making of companies.

Elsbach and Stigliani (2018) argue that organizational culture is a critical pairing for the methods and processes of design as it can have a positive or a negative effect on the use of the design tools. They also theorize that the usage of the tools can have a positive influence in the development of the organizational culture and visa versa. Furthermore, they emphasize that physical artifacts and emotional experiences that are created as a result of the design tools are important in the building of design-oriented design cultures.

Finally, Kolko (2015), discusses the design tools, strategy and culture in a way that implies a strong interplay between them. He discusses the importance of design as a tool for strategy creation and, much like Brown, how proper use of the design tools is inherently linked to strategic development of

the companies. As for culture, Kolko defines that “design-centric culture transcends design as a role, imparting a set of principles to all people... “ (Kolko, 2015, para. 5). Furthermore, Kolko also highlights how a design culture is required for the proper usage of the design tools within an organization.

As highlighted, the research explicates a clear relationship and influence between the processes and both design culture and design as strategy, which indicates a conceptual separation of the processes and the other two. However, while strategy and culture, when separated from the context are two distinct concepts, and within the design literature they are clearly used as separate terms, it is difficult to specify the exact relationship and domain between the two terms, as in the current literature they remain conceptually very close. Regardless, under both culture and strategy, positive relationship with the processes were theorized.

Practitioner Models of Design in Business

While on the academic side the relationships between the different forms of design remain somewhat ambiguous, there are some frameworks from the practitioner side that aim to provide an explanation between the concepts and their relationships with each other. The following section will explore two of them: the Design Maturity Model and the Danish Design Ladder.

The Design Maturity Model developed by InVision (Buley, 2019) is based on over 2200 interviews across industries and it proposes 5 levels of design maturity for companies:

- (1) Producers – “Design just makes it look good”: Design is utilized to create consistency through visual identity
- (2) Connectors – “The workplace becomes a workshop”: Design becomes a collaborative process, but it is still owned by the designers. Design tools such as user research, user stories, usability testing and personas are more prevalent.
- (3) Architects – “Design is a scalable operation”: Design ownership is shared broadly through the organization, allowing it to be used for more complex product and service ecosystems as well as shape internal operating structures
- (4) Scientists – “Hypotheses and experimentation power design”: Companies are competent in data-driven design and tools for analytics, experimentation, and measuring success of specific efforts. Early design strategy practices are used for market research and vision

development. Empowerment of individuals to pursue opportunities. Leadership openly supports design.

(5) Visionaries – “Design means business”: Design is a core part of strategy through exploratory user research techniques, trend and market foresight, and contribute to cross-platform strategies.

The Design Maturity Model roughly relates to the academic discussions on value by, level 1 being the traditional aesthetic and form-giving aspects of design, levels 2 and 3 being the design processes and methods that are used more broadly in the organization, and level 4 and 5 beginning to hint and fully encompassing using design as a core part of strategy. Culture is not explicitly visible in the model.

The Danish Design Ladder by Danish Design Center (Danish Design Centre, 2015) divides design to four steps on a ladder:

- (1) Non-design – “Design is not applied systematically”: Design is invisible and/or not handled by trained designers. Users’ perspectives plays little or no role.
- (2) Design as form-giving – “Design is used as finish, form-giving or styling in new products/services”: Design is the final form-giving stage (“styling”). May be handled by trained designers, but often not.
- (3) Design as process – “Design is an integrated element in development processes”: Design is integrated at an early stage to the development of products/services. Solutions are driven by problems and user needs and the process is requires various expertise’s (not just designers).
- (4) Design as strategy – “Design is a key strategic element in our business model”: Designers work with upper management to rethink the business concept.

The first level of the Danish Design Ladder focuses on companies who are not engaging in design in a meaningful way. Compared to the academic discourse, level 2 relates to the traditional role of design as a aesthetics and form giving, level 3 is where most of the academic discussion has focused, as a set of tools and methods that can be more broadly used across functions, and level 4 brings the focus to the strategic aspects of value. Once again culture remains absent from the original formulation of the model, however some practitioners have suggested to add it as even a higher level than strategy (Hoedemaekers, 2016).

Summary of the Design Literature

The design literature has repeatedly shown how investments in design help the companies reach positive business outcomes, however a picture as to how that is achieved remains ambiguous. Much of the early literature focused on understanding and codifying the processes and methods designers use to deal with complex, open ended and multi-plausible solutions. Partially in parallel and with more focus recently, the research has also looked into the significance of ‘higher levels of design’, such as using design as a part of strategy and the design culture. Practitioners have also provided various frameworks in attempt to bring together a wholistic picture for the role and benefits of design.

Overall, both of the academic discourse as well as the practitioner frameworks support an idea where design has multiple levels or maturities. On lower levels design takes the role of aesthetic, form giving or ‘styling’. On the middle levels, design takes a role for solving more complex business problems through defined designer processes and methods than can be used more broadly within the businesses. Finally, on higher levels, design takes a role where it influences the company as a whole on a strategic level. The academic discourse highlights cultures importance in supporting the design approach, and a positive reciprocal influence between the usage of design processes and development of design culture. Some practitioner models place design culture on an even higher position than design as strategy. The role of culture remains uncertain.

2.4 Research Questions

This paper is focused on a single research question:

What are the various benefits and sacrifices as perceived by the liaisons of the sponsoring companies of project-based design courses?

As highlighted by the literature there are six natures of value from which three are highly relevant in formulating the research question. As a core premise of a value judgement is the trade-off between the benefits and the sacrifices, and therefore they function as the core structure of the research. Similarly, the theory highlights the subjectivity of the value judgement, shifting the focus from some abstract absolute value, to the personal perception of an individual. In this context, the liaison is in a unique position as a focal point between the course and the sponsoring company. Finally, as also highlighted by the literature, value is highly contextual, and therefore it is crucial to carefully define the context. The methodology section will further define the exact context of this research.

Overall, the focus of this paper is to highlight as broadly as possible all the various forms of value that the sponsoring company might directly or indirectly be subjected to. This is to say that the primary purpose of this research is not to establish any quantitatively or comparative measurement of the importance of the various forms of value.

3. Methodology

This master's thesis was conducted through a qualitative methodology, heavily utilizing the methods of constructivist grounded theory. The research looked at five case companies, which participated in one of two different project courses as sponsors, and during the research 13 in-depth semi-structured interviews were conducted. This section will describe in detail the design and methodology of the research.

3.1 Research Paradigm

As much of the literature focused on explaining the nature of value, there is a lack of a theoretical model able to act as the backbone of the research into explaining how the value actually manifests in a specific context. Therefore, to focus on the various forms of value for the sponsoring companies of project-based design courses, a qualitative research method was chosen. This paper draws heavily from grounded theory tools as it focuses on developing theories founded in data, instead of focusing on deducing theories based on existing theoretical understanding (Glaser & Strauss, 1967).

This paper follows the notion of *interpretivism* where reality is experienced individually, and that it is a mind-dependent, and a personal or social construct (Chilisa & Kawulich, 2012). This is strongly in line with the theory which highlights that the concept of value itself is both subjective and contextual. This paper also follows the notion of *constructivism*, which acknowledges that the results that come from the research are constructed by the author and are based on past and present involvement, and perceptions – and that the results are ultimately “an *interpretive* portrayal of the studied world, not an exact picture of it” (Charmaz, 2006, p. 10). The acknowledgement of the constructivist nature of this research is critical as the author has history as a student for both of the courses, as well as a staff member in one of them, and that the whole premise and scoping of the project is based on personal interest of the author, leading to undeniable bias in the research.

Furthermore, this paper follows the notion of *abduction*, where the reasoning made based on a surprising observation “and then works backwards to invent a plausible world” (Van Maanen, Sørensen, & Mitchell, 2007, p. 1149). The notion is surprising when our existing theoretical frameworks do not offer an explanation for our observation (Piekkari & Welch, 2018). The surprising observation in the case of this paper, is the poorly established understanding of the various form of value that the sponsors experience in the context of project-based design courses, and the lack of

value literature that is capable of explaining the concept on a concrete and pragmatic level. While inductive approaches focus on a theory-free start, the abductive approach emphasize the importance of a set of diverse theoretical lenses, which allows us to see the limitations of the existing theoretical frameworks (Piekkari & Welch, 2018). This research takes a wide look at the various streams of literature on perceived value and generates a generalizable framework. The framework is then used as a basis for building the methodology of this research, to ensure an informed starting point for the exploration.

3.2 Research Design

Interaction Between the Theory and the Research Design

As an outcome of the literature review, six natures of value were proposed. The purpose of this paper is not to validate the framework, but instead use that framework as a starting point into constructing a pragmatic understanding as to what is the value of the courses for the sponsors in this context. By utilizing the six natures of value to inform the research in sampling and data collection, a methodology could be devised that would be more likely to capture a broader set of values. This section will briefly highlight how the six natures influences the overall design of the research, while the further sections will go in depth about the research design overall.

Subjective

Following the *interpretivist* philosophy and the unilateral emphasis in the literature on the subjectivity of the value judgement, it was critical to have an individual as the target of study for the research, rather than attempting to capture a more positivist, or objective concept of value to the company.

Trade-off

The benefit-sacrifice trade-off is considered a core aspect of the conceptualization in the literature, so it was used as a core lens for the data collection. By ensuring the exploration of both benefits and sacrifices, the research could overcome some of the biases that may be inherent in understanding the term value in a positive light (e.g. valuable – “having desirable or esteemed characteristics or qualities” (Merriam-Webster.com, 2019)).

Personal, Hedonic, Comparative

The influence of the personal values of the object of study, the emotional value, and the existence of alternatives were included as themes in the structure of the semi-structured interviews. These natures

of value particularly have a potential to contain sensitive information, so it was important to be able to give the liaisons and their companies anonymity.

Contextual

The contextuality of value informed the study in two ways. First, because the existing literature considers value to be tied to time (e.g. pre-purchase vs consumption) and situation (e.g. need for an ambulance), the research was conducted longitudinally to capture value at different points in time. Second, as even small variations in context might influence the perception of value, the research was designed to have two courses which both fit within the larger context of project-based design courses, but which had natural variance due to inherent differences.

Liaisons as the Object of the Research

Due to the subjectivity of the value judgement, as well as the personal and hedonic aspects of the value, it was critical to focus the research on an individual. This is also supported by the interpretivist perception to the reality and “truth”. The liaisons were selected as the focus of the study because they are in a unique position where they interact with both the company and with the course. While a more authoritative individual could have been also or instead selected from the company, for example the liaisons superior, this was ruled out for two main reasons. First of all, the liaison is in a unique position between the students, course staff, and various stakeholders in the company, as shown in figure 3. They are in the position of managing and supporting the project with the students, as well as relaying information to and from the rest of the organization. They are often in the role where they also need to justify the value of participating to the project towards various experts and departments, as well as the leadership of the company. Furthermore, they are largely in charge how the results of the project influence the company, and they effectively the champions for the project, who are critical for the success for an innovation project (Chakrabarti, 1974). Overall, they are the individual who can give the richest data, which is a key consideration in qualitative research (Charmaz, 2006). Second, while it would have added to the richness of data to have the input of, for example, the senior leadership in the company, getting access to them was beyond the means of the author, as will be highlighted in the following sub-section.

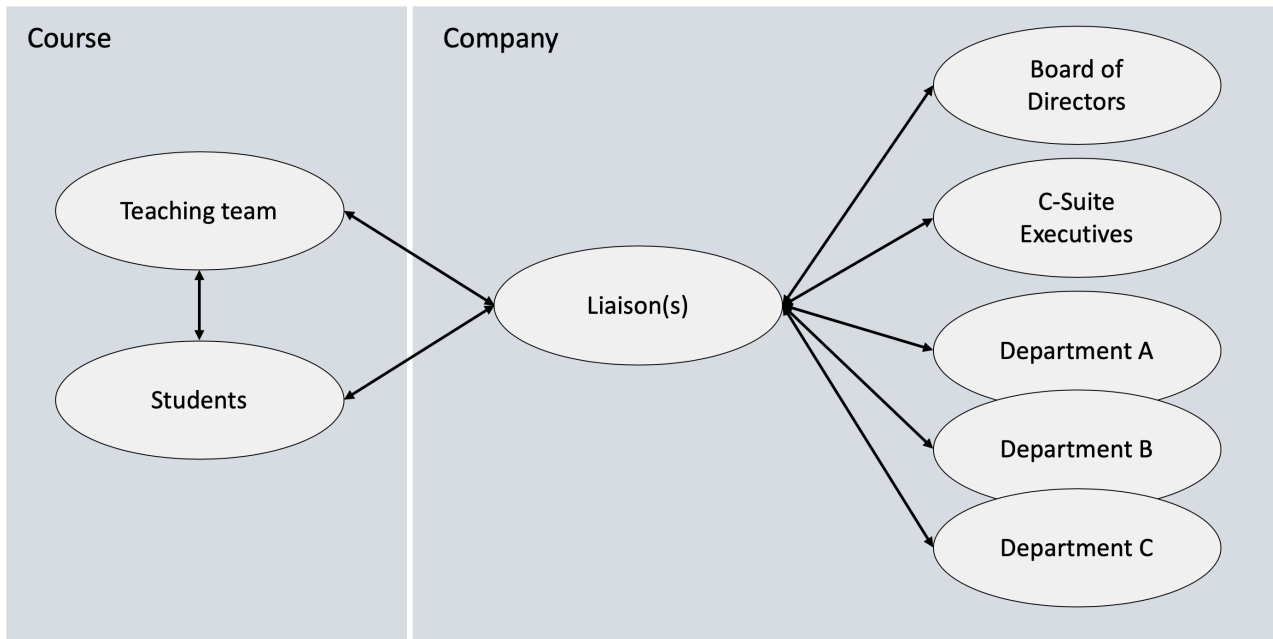


Figure 3 - Liaisons unique position between the course and the rest of their company

Selecting the Courses and Companies

The selection of the courses and companies in the research relied significantly on convenience sampling, but other aspects, such as the theory and quality of pragmatic results influenced it as well. Convenience sampling is a type of non-random sampling where the inclusion of subjects are decided based on some practical reasons, such as availability or geographical proximity (Etikan, Musa, & Alkassim, 2016).

One of the courses, ME310 (which will be elaborated upon later in this section), served as the context in which the surprising observation (which is central to abductive reasoning) was initially experienced in by the author, making it a core premise for this research. A second course was introduced for two reasons. First, due to the nature of the network of universities that make up the ME310 courses, the set of potential companies is finite and when combined limited liaisons willingness resulted in a limited set of volunteers. Second, as explained previously, by including another course as a part of the data set, a better understanding of the contexts of the courses could be generated. While convenience sampling was present in the selection of the second course, a wider set of courses were available as subjects of study. IDBM Industry Project (IDBM IP) was selected as the second set for being the closest option in terms of design process and overall course focus.

The case companies were primary selected on a convenience sampling basis with multiple rounds of filtering. First, in the ME310 case, no direct connection to the companies was possible so the initial contact was with all of the various universities participating in the course network, who were asked if their sponsors could be approached about the study. The participating universities already functioned as a significant filter (convenience sampling - willingness), mainly through non-response after multiple contact attempts and through calling on existing research burden on the companies. IDBM IP approved contacting all of the sponsoring companies.

Second, the companies were contacted directly, with the premise that the course had approved the research, and requested to join the research, which served as a second set of willingness-based convenience sampling. Two ME310 companies were contacted and they both agreed to participate, while six IDBM IP sponsors were contacted out of which three agreed to join.

When utilizing convenience sampling, it is mandatory to highlight how the sample would differentiate compared to random sampling (Etikan et al., 2016). By selecting the courses and companies based on convenience sampling, especially with two filters, the resulting sample can be considered highly biased. The university level filtering that was part of the ME310 sampling will most likely emphasize companies to which the university has good connections with. This was apparent in that both of the participating companies had participated in the course multiple times. The sponsor level filtering most likely shifted the sample towards liaisons which were invested in participation to the courses. Overall this leads to a sample that the sample includes companies that likely hold a positive value judgement regarding the courses and are highly invested in them. However, as the purpose of the paper is to identify various forms of value – and not for example try to quantify the overall value judgement – the bias can be seen as a beneficial aspect, as from a pragmatic point of view, a sample that has a positive value perception and is highly invested in the project is likely to give a rich set of data.

Description of the Courses and Companies

This section will describe the two courses and five companies that were part of the research. Due to the possibility of the emergence of information that is sensitive to the liaison themselves (e.g. personal values in conflict with company values) or to the company (e.g. the strategic development direction for the company), it was crucial to anonymize their data. For this reason, the following details were anonymized for all of the projects: the company's name, industry, size and revenue; and the liaison's

name and specific title. Furthermore, in the ME310 projects the following details were also anonymized: the partnering universities; the exact costs of the projects; and the credits provided.

Courses

The two participating courses are in the big picture very similar, while at the same time, within the context have meaningful differences. There are some easy to highlight similarities:

- Follow the human centered design approach
- Treat design not only as a process, but also a culture
- Follow the problem-based learning -pedagogy
- Interdisciplinary
- Industry project based
 - Real project from the industry
 - Real money involved

As for the differences, ME310 is run globally in somewhere between 25-30 different universities participate annually from around the world, where each project team is compromised from 3-5 people from one university and 3-5 people from another university. The teams work together primarily virtually, but travel to meet each other typically 3-4 times during the project. The core of the course is same throughout the network, but each university runs their own course, so differences do exist. Each university has their own course staff meaning that each student team has two separate teaching teams, one for each half of the team. The courses run for around 9 months. Each university individually negotiates sponsorships, which they then bring to the network to find the other half of the team. Overall, there are differences in the final outcomes of the projects from one university to another, but generally the final concept is expected to be on a proof of concept level. Due to each university running their own course and negotiating their own sponsorships, there is a significant variance within the expected student workload as well as the cost of the projects for the sponsors. The four universities, that comprised the two projects that were a part of this research had a workload between 15 ECTS (quarter workload) and 60 ECTS (full time workload). The cost for participating in the courses that were part of this research were on the both sides of 100k€.

IDBM Industry Project, is run locally in Aalto University, where around 10 projects are run annually. The teams are comprised of 4-6 students who are all in the same geographical location. Compared to the ME310 course, the final concept focuses more on a concept, especially on the business model side, and does not require a proof of concept prototype. During the academic year during which the

data was collected, the course ran for 6 months. The workload for the course is 15 ECTS (quarter workload) and the cost is 20k€.

Companies and Liaisons

The **Global Manufacturing Company** is a manufacturing company that is in the B2B market. Their revenue is in the 1-5 billion euro range and in the 15-20k employee range. They operate in the 150+ countries. The company had two different liaisons through the project who both worked as Senior R&D Managers. One of them participated in the first and third interview, while another one participated in the second one.

The **International Component Supplier** is a component supplier that is in the B2B market. Their revenue is in the 15-20 billion euro range and in the 100k-150k employee range. They operate in 20-40 countries. The company had two different liaisons through the project, one of which was the Innovation Lab Founder who worked in a designer capacity, while the other one was the Innovation Lab Manager. The Innovation Lab Founder participated in the first and second interview, while the Innovation Lab Manager participated in the last one.

The **International B2B Service Provider** is a service provider that is in the B2B market. Their revenue is in the 100-500 million euro range and in the 1-5k employee range. They operate in 20-40 countries. The company had a single liaison throughout, and they worked as a Director of Business Unit.

The **Local Retail Company** is a retail department within larger organization with a different primary purpose. They are in the B2C market. Their revenue is not publicly disclosed and their department is in the 1-5 employee range. They operate locally. The company had a single liaison throughout, and they worked as a Product Manager.

The **International B2B Retail Company** is a retail company that is in the B2B market. Their revenue is in the 1-5 billion euro range and in the 15-20k employee range. They operate in 20-40 countries. The company had two liaisons for the project, where one participated in the first interview and the other one opted out from participating in the remaining interviews. The first liaison worked as a Director of Business Development.

Data Collection

The data for the research was collected through a set of 13 interviews. These interviews were longitudinally spread so that the first interview for each case was after purchase, but before the projects had started; the second set of interviews was approximately halfway through the course, after a key milestone; and the third interview set was between 1-3 months after the end of the project. This spread allowed data collection which would capture temporal and situational contexts to influence the data, as well as allow the liaisons to regularly reflect on the value on the project, enabling much richer data.

The interview methodology used followed the *intensive interviewing* -approach, where the premise is to create a directed conversation with individuals who have relevant experiences, which – with the help of the interviewer – are reflected upon in-depth in a way that is rare in everyday life (Charmaz, 2006). Broad open-ended questions were devised to encourage liaisons to explore the notion of value for themselves and their company. Follow-up questions and statements were used to encourage more liaison led exploration (e.g. “Interesting, please go on!”), to gain more in-depth exploration of a specific topic (e.g. “Why do you feel that was important for them?”), to revisit earlier branches of the conversation (e.g. “You mentioned X earlier, could you tell more about that?”), and validate understanding (e.g. “So if I understood correctly...”). In no point of the interviews, was there a need to re-direct the conversation back on topic. Only when the natural exploration halted, further questions were drawn upon from the list of prepared questions and themes. Themes from the literature were added to the list of questions related to hedonic aspects (e.g. “Is there anything you are excited or worried about?”), personal aspects (e.g. “What do YOU want out of this project?”), and comparative (e.g. “How is it different to work with students and professionals?”).

The intended duration of the interviews was 45minutes with 15minutes extra scheduled for practicalities, with the final interviews for two of the cases scheduled for a total of 1h 30min. The extended interviews were conducted partially based on a request from the liaisons, as well as to ensure time to get up to speed, due to the changes in liaisons. The actual durations of the interviews ranged from 30 minutes to 1h 37minutes, with a total interview time of 650 minutes and an average of 50minutes. The interviews were recorded and transcribed verbatim.

Based on each interview a memo was also immediately written as they are a crucial step which force you to stop to analyze your data and to start crystallizing and theorizing your ideas, so that you can be informed to adjust your research direction (Charmaz, 2006). Starting from the first interview, each

memo-writing process created change in the interview approach, through the accumulated understanding and abstraction of ideas influencing the course of the interviews, and/or through the revision of the interview questions. See Appendices A, B and C for the interview question structure.

Coding

The collected data was coded in three phases: initial coding, and two phases of second focused coding.

Initial coding is the first step in the grounded theory data analysis where the purpose is to focus on what the data actually shows instead of trying to synthesize or categorize it (Charmaz, 2006). This is a core part of the core idea behind grounded theory where the theory is supposed to emerge from the data instead of the data being analyzed with a specific model in mind. The initial coding focused primarily on incident-by-incident coding, but where particularly insightful, in-vivo codes were used as well. Coding the data incident-by-incident creates a thorough method for examining all of the data, which especially allows the coder to recognize both explicit and implicit nuances, resulting in more meaningful data. From the data emerged specific occurrences where the liaisons used particular words or phrased something in a particular way, in which cases in vivo coding was utilized. This was because in vivo coding allows the preservation of the interviewees' meanings, especially when the underlying meaning might not be apparent (Charmaz, 2006).

The coding process transitioned seamlessly from initial coding to focused coding as apparent patterns started to emerge, as is typical in grounded theory (Charmaz, 2006). Both, the more data oriented initial coding as well as the conceptualizing focused coding happened in parallel for much of the overall coding process. Focused coding was the first conceptual step in the data analysis where significant or frequent first order codes are used to group and explain larger sets of the data. By utilizing the focused coding, data from across cases could be compared and validated, effectively condensing and reducing complexity (Charmaz, 2006).

Because the purpose of the research is to highlight a wide variety of different forms of value, despite the reduction of complexity gained by the focused coding, the amount of data remaining was overwhelming. All of the codes remaining after the initial and focused coding, were then further thematically analyzed in a format inspired by Gioia et al.'s data structure (2013). While Gioia et al. suggests that after the initial coding and focused coding (first order code and second order code, respectively, in their proposed model) one should create higher order constructs called the aggregate

dimensions, however, due to the variety of data still remaining, an additional round of focused coding and data reduction was conducted, which resulted in an additional layer compared to the proposed data structure.

By presenting the data in the proposed data structure, not only does it serve as an excellent visual aid for the findings, but it also represents how the data was analyzed and reduced (Gioia et al., 2013), in this case to a pragmatic representation of the various forms of value in this context. Due to the large variety different forms of value, and to represent the additional round of analysis and focused coding conducted, an additional layer was added compared to the suggested data structure. See section 4. Findings for the data structure.

4. Findings

This chapter will present the various forms of value that emerged from the data. See figure 4 for the overview of the findings. The aggregate dimensions provide loose groupings of values, while the categories provide first pragmatic abstractions of value to the sponsors. The sub-categories offer concrete forms of value and finally, not present in the data structure but elaborated in this section, are the initial codes which provide anecdotal experiences of these values.

While the data was analyzed from the more concrete (first order / initial coding) towards the more abstract (aggregate dimensions), the findings in this section are presented from the highest abstraction level, breaking it down to more concrete levels. The sections are also structured based on the core benefits–sacrifices division, where the benefits are presented in the first part, and the sacrifices in the second. While the core focus of this research was on identifying various forms of value, the data highlighted some areas as more impactful while others less impactful. The conceptual similarity was the primary driver for how the data is grouped and presented, but the aggregate dimensions are ordered loosely based on the importance found in this data set. It is important to notice, that the overall value judgement is a compounded judgement from many of the values highlighted in the findings, and no single aspect constitutes the whole value gained by the liaisons and companies.

The next section will give a brief overview of the results, while the following sections will give an in-depth and detailed breakdown of the findings. For a more in-depth overview, reviewing the category and sub-category level introductions to the sub-sections provide a concept level understanding of the findings, while reviewing the initial coding level findings offers an extremely detailed and not strictly generalizable understanding of the values.

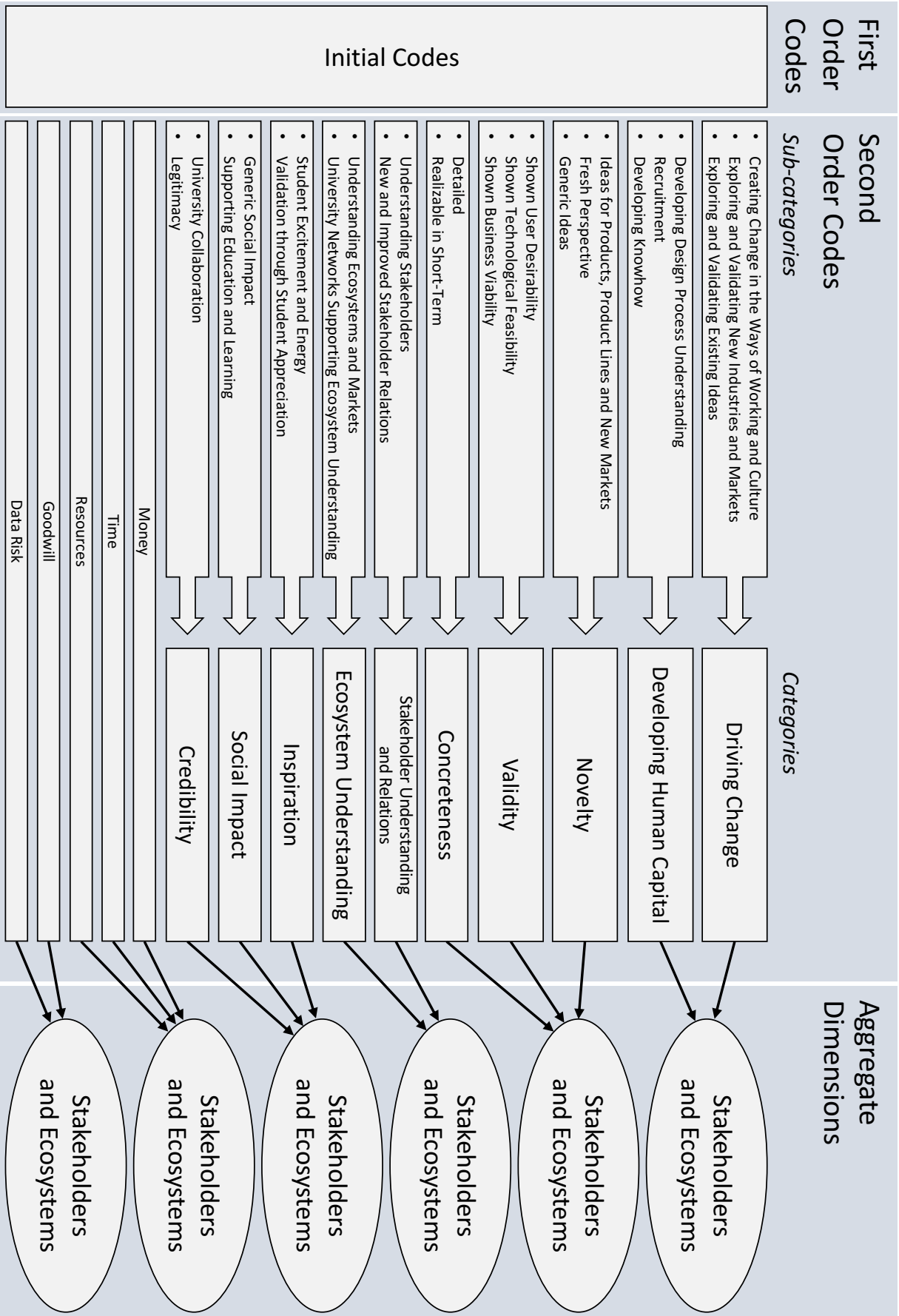


Figure 4 - The Gioia Data Structure of the findings

4.1 Overview of Findings

Driving Change

The data highlighted that while the main scope of the projects is to create a ‘proof of concept prototype’ or a similar concretization of a concept, the liaisons explicated benefits in how the projects can help them drive change within their organizations. The change could be classified to three distinct areas: changing the ways of working and culture in the organization, exploring strategic aspects such as new industries and market opportunities, and finally an area that can only be classified as ‘other’ ideas that the liaisons were seeking to explore and validate. An interesting aspect within these findings is that while company benefits were the ultimate purpose, liaisons personal perceptions and agenda played an important role in the formulation of these values.

Developing Human Capital

The liaisons expressed the benefits of utilizing the projects to develop their human capital in three distinct ways. First, the courses can be used to develop their own, or their colleague’s knowhow into the design process itself that is used as the core methodology for both of the courses and, thus, also projects. Second, while the courses were seen as an excellent way to promote the company’s recruitment, both through employee marketing as well as the courses functioning as what can only be called an extremely intensive job interview. Third, and closely related to the first point, the liaisons expressed other knowhow development beyond design related. For example, the projects can be used for the liaisons to gain experience in managing small project teams.

Natures of Project Outcomes – Novelty, Validity and Concreteness

The findings related to the project outcomes were interesting, as it was a highly expected category for value as the core deliverable of the projects, but regardless, the findings were somewhat unexpected. While the liaisons expressed the value of the project outcome, the actual expectations for the outcome were difficult to explicate for a few of the liaisons at the beginning of the projects. As the projects developed, further depth emerged beyond the terms such as ‘service’, ‘project’, and ‘concept’. The data revealed that the project outcome can be valuable in three different ways. First, there is value in the *Novelty* of the proposed outcome. Getting access to new ideas to their development pipeline, getting new perspectives on how approach the problem space, and in other areas for new ideas were seen valuable. Second, there was value in the shown *Validity* of the outcome. Showing for example research, data, user needs, and prototypes that validate the outcome(s) had merit. Third, there is value in the level of *Concreteness* of the outcome in two main ways. There was

value in the outcomes being highly detailed so that there was minimal abstractness as to what the outcome is and/or the next steps were clear. Some liaisons valued concepts or outcomes that were designed to be realizable in a short-term with current technologies and market situations. Overall, the three directions are somewhat at odds with each other, for example: spending time to do create something extremely novel is time and resources away from crystalizing the concept to a level where it is well defined. The liaisons and companies also had widely differing preferences as to which aspects are worth prioritizing.

Stakeholder Understanding and Relations

The liaisons put value on understanding their stakeholders better as well as on improving stakeholder relations. A significant part of stakeholder understanding was the understanding of their users and customers. The reason why the sub-category was defined as it was is because there was surprisingly little focus on the ‘understanding the user’ aspects, as well as for a few, the role of their ‘users’ was quite complex, where they would sometimes hold multiple different stakeholder roles. This strongly relates to the second part, which is improving stakeholder relations, where the projects were also a way of connecting with different stakeholders and improving the relations with them.

Ecosystem Understanding

The understanding of ecosystems was divided into two distinct parts due to the nature of the courses being part of larger academic networks. The first part is the value in gaining improved understanding of the market and ecosystem. The second part is the value of being part of a university ecosystem. Through the courses, the companies gain unique access to events where they can see what others in their or adjacent fields are doing, as well as the connections through the universities offer connections for the companies, that they – in their traditional business environment – would not have access to.

Inspiration

The value from the inspiration the courses can provide is highly linked to the liaison’s perspective, and is also highly unique to the students’ participation to the projects. Various liaisons stated their excitement in working with young students who are energetic have not been influenced by the ‘pragmatism’ within the industry. Furthermore, as representatives of the new generations, the students’ appreciation of the company or their operations was seen as a validation to what the companies are doing.

Social Impact

The liaisons also felt intrinsic value in being able to provide students better learning opportunities due to the companies sponsoring projects. Similarly, there was value if the project managed to contribute to the society and not just provide direct benefit to the company.

Credibility

The academic nature and the reputations of the universities provided inherent benefit to the companies through the credibility of the collaboration. Furthermore, the utilization of the tools and methods in the courses also provided some liaisons credibility as to their own ways of working.

Tangible and Intangible Sacrifices

As for the sacrifices side of the value judgement, the data was significantly more straightforward. Two major sacrifices emerged far and beyond any of the others: *Money* and *Time*. The monetary cost of sponsoring these projects was considered significant and put a counter pressure to the outcomes of projects. For the liaisons, however, the time investment was experienced as a more recurring concern for the projects. While all liaisons considered investing time to these projects as critical, all of them also expressed how the time investment is a very significant concern, and significantly higher than doing the project with a professional consulting company, for example. The other sacrifices had considerably less expressed or implied significance. There were other company resources (e.g. company products provided for students), good will (e.g. asking customers or colleagues to indulge the students), and intellectual property and data risk (e.g. the outcome being copied or customer data being mistreated by students).

4.2 Benefits - Strategic Development

Even though the projects are seemingly about design thinking with the focus on actually conducting product and service development, the single most unexpected and, at the same time, arguably most impactful contributor to the value gained from these projects is related to Strategic Development. Especially when taking the perspective of the liaisons, these projects supported the liaison to Drive Change in their organizations to steer the company in the direction they envisioned it should develop in, and thus served as a major value contributor, if not the primary reason for participating in these projects. In addition to *Driving Change*, a strategic need for *Developing Human Capital* emerged a significant factor as well and was in many ways tied with the change the liaisons were driving.

Driving Change

Supporting the liaison in driving change in their own organization was a critical aspect in benefit of the projects. In two of the cases, driving change was one of the primary factors in value generation, and in two other cases it was a meaningful contributor to the value, while in one of the cases it did not emerge at all. The change that the liaisons were looking to drive related to *Creating Change in Ways of Working and Culture*, *Exploring and Validating New Industries and Markets*, and *Exploring and Validating Existing Ideas*. While the whole *Driving Change* category of value was an unexpected, the largest surprise, however, was not that the category and its sub-categories emerged, but how great contributor of value they seem to be.

Considering that *Driving Change* overall was somewhat of an unexpected category, it is surprising that the sub-categorization of *Creating Change in the Ways of Working and Culture* showed up strongly in four of the five cases. The data shows that there is a need for change in the ways of working and culture, also highlighting that the projects can help as well as how they can help. This sub-category was a very significant source of benefits for the liaisons.

Out of the five cases *Exploring and Validating New Industries and Markets* showed up in two, in which it served as a core focus for defining the brief and therefore the direction for the projects. This sub-category was a significant source for benefits for those two projects.

Finally, the *Exploring and Validating Existing Ideas* was a category that emerged as a separate, a bit of a ‘catch all’ category for the data that did not fit the other sub-categories. It includes value from companies exploring and validating wild concepts as well as value from the projects unintentionally validating some notion that the company had outside of the project. Overall, the category seems to contribute little to the overall value judgement.

Because this value forms through multiple other aspects – such as the project outcomes, the processes, project environments and the internal work by the liaisons and much more – practically its fulfillment is dependent on the degree of success seen in the other value categories. Regardless of the dependence on the other value categories, the liaisons can be directly supported in realizing the change they envision.

Creating Change in the Ways of Working and Culture

There was a very distinct phenomena of the liaisons using the projects to drive change in their organization towards a better way of working as well as the culture required to support the new ways. The data shows how the liaisons view gaps between what the company culture and ways of working are, and what they should be. Similarly, it shows that the liaisons believe that the projects are a good way to solve that problem to the point where it is one of the most important, if not the most important purpose of the projects. The data further highlights five different ways in which the projects can help with the culture change: they can give concrete examples that can be shared within the company, they can provide mental support in driving the change, they can give legitimacy to the new ways, they can serve as blueprint of the new cultures and ways of working, and finally they can help recruit students who then support the new ways. This sub-categorization does not include the acquisition and dissemination of understanding regarding how to practice design principles, for it has its own category under *Developing Human Capital*.

The data shows that some of the liaisons viewed their companies' culture and ways of working as incompatible with the innovation and design approaches they were driving. For example, the Senior RnD Manager at a Global Manufacturing Company, explained that their company is organizationally a production company:

The need is to start investigating Horizon 3 ideas. Organizationally, we can't do that within [our company], because we are set up to sell products, so we live in Horizon 1. The big need is that we- we will not continue to exist as a company, if we don't start looking at Horizon 3, these 15-year projects ... It's a way of influencing our culture. So, we start with these kinds of projects, we share them across the business.

Similarly, the culture of the company in the International Component Supplier was not adapted for innovation, according to Innovation Lab Founder: “[Our company] is very ancient company. It has a strong background, a very heavy company culture that is quite old-fashioned, because it comes from the manufacturing, production culture, so it’s a lot about the quality, cost reduction, risk avoidance, a lot of processes, a lot of rules.”

To deal with these incompatible cultures and ways of working, the liaisons are utilizing the projects to create change within the companies. For a few of the cases, this was the single most – or one of

the most – important reasons for participating in the projects. For example, the Senior RnD Manager at a Global Manufacturing Company said: “I'd say at the highest level, what we get out of this is, you know, a culture shift within our company. That's the biggest. We don't look at it like a sponsored research kind of project. It's really a big culture shift.”

Similarly, the Innovation Lab Founder at an International Component Supplier explained that a core premise for their participation to the projects was due to creating a mindset shift: “[The Director of Innovation] wanted to recreate the type of projects and the type of mindset that he had seen in the [university platform running the course]. And he wanted to make something that was adapted to [our company]’s context and [our company]’s culture.”

As some of the previous quotes have already shown, the first way in which the projects help the liaisons drive change is by giving them concrete examples that can then be shared within the company. For example, the Senior RnD Manager at a Global Manufacturing Company explained how they use the projects as an example within internal communication:

That’s what our CEO has been trying to change: it’s a culture of how you think on solving problems. So to me, the interaction of [our company] through the [course], it’s allowing us to explore that space and, so we can also come back to our employees and say, just expose what we’re doing with [the course], and try to create also that philosophy of thinking outside the box when working on a solution for a customer.

The second way in which the projects supports the liaisons, is by giving them the mental support to keep creating the change. The Director of Business Unit at an International B2B Service Provider explains that external support on the change they are driving helps them cope:

[Our company] changes rapidly, and in my team, we do things that have never been done in our company. So, it is quite challenging to push through the change. Like the managing of the things and people, so that they get comfortable that not everything will succeed, that things can sometimes go completely wrong. But then always when I get support, that someone agrees with me about something, then it helps my own thinking and managing my own things.

The third way in which the projects support the liaisons is by giving them and their methods legitimacy. As an example – and strongly related to the communication aspects – the Director of

Business Unit at an International B2B Service Provider explained how by running the project they can support their own message when dealing with other departments: “It can be an eye-opening experience for our IT-department, for why – I am maybe once in a while fighting windmills – that why some things need to be done. So, I am also supporting my own message regarding it.”

Similarly, the Innovation Lab Founder at an International Component Supplier explained how the academic collaboration and ways of working bring credibility to the methods that their boss has used for a long time:

So, I think that when [the Director of Innovation] discovered the [university platform running the course], he finally found someone or something that could put words and terminology on his natural way of working in [our company]. ... He wanted that ... because it gave him some legitimacy in terms of network and kind of methodology in terms of the academic reference that he lacked.

Fourth, the projects support the liaison by being a concrete example of an environment where such ways of working and culture can manifest. The Innovation Lab Manager at an International Component Supplier explained about how their innovation lab was created in the image of the university platform in which the course is run: “And because in our activities, the [innovation lab] was created almost from the [course] program. And it was created, an entity that was based on the Design Thinking of [the course] and design approaches. [The innovation lab] here resembles a lot what had been created in the [university platform] at the time.”

The fifth and final way is related to the *Developing Human Capital* through recruitment and how the courses help the companies recruit students and how that helps the liaisons shape the company. The Innovation Lab Manager at an International Component Supplier explained how recruiting new people with the aspired culture can change the company:

There’s never a better way to make a company change than also having some new blood in it. I’ve seen a lot of skeptical people, who will say like: “You never change people.” And some of my bosses were like that. It’s like you don’t change people. If you want to change a company, you need to change its people, and not the people themselves. I’m still not convinced about that, but one thing I’m convinced about is that if you want to have a company change, you will need to integrate new blood and new ways of thinking things.

On the other hand, it can be difficult to recruit the individuals to support the change when the differences in ways of working and culture are very different, as elaborated by a Senior RnD Manager at a Global Manufacturing Company: “Like I said we have a big culture problem. So, to take these students who have worked on these big ideas, these radical ideas, and then to find a spot where they would be happy within a very traditional engineering company, that would be difficult. So, I do think the company needs to grow before we have a spot for recruitment of these kinds of students.”

Finally, the data also showed how the liaisons had already seen change in the culture and ways of working within the company based on the projects from previous years. For example, the same Senior RnD Manager at the Global Manufacturing Company pointed out the changes in the attitudes of the top management:

People at the top levels of management who were previously only concerned with the day-to-day sales, making money, they can now have conversations about these far-out Horizon 3 ideas. Like we can at least start talking about these things. Because sometimes these ideas are, you know, threats to our existing business. Like last year's project suggesting that we are gonna start selling low-cost [products] instead of very high-cost [products]. That's a threat to our existing business.

The liaison also reflected on similar change in other parts of the organization:

[One for] example being that I can pull in subject matter experts. ... You know, they're spending their day-to-day doing sustaining engineering of existing products. It is actually that they can have a meeting to talk about putting [a specific product concept in new environment], even though, those are not even our markets. The fact that they can have those, I see as a practical shift that I can pull those people in for a one-hour meeting to talk about these wild ideas.

In summary, the data has shown how the culture and ways of working need to be changed in their companies, how the liaisons believe the projects can help with that, five ways in which the projects can help with the change, and finally, how the liaisons had already seen change based on the projects from previous years.

Exploring and Validating New Industries and Markets

The project briefs from two sponsors were directly aimed at exploring and validating certain new markets. While the briefs set further expectations to generate ideas and concepts for the new markets and industries, the exploration and validation of these new markets and industries held inherent value to the liaisons. The data shows three main points: that the projects are good at creating change because they are conducted by an external party, that the projects are used to explore and validate both new industries the companies should be engaged in as well as new markets that have opportunities in them, and that the projects have been able to create change within the companies, even if the change might manifest slowly. While this sub-category has some overlap with the *Validity* category, the key difference and the reason why this is a separate category is because – unlike in the *Validity* category – in this context the validation is not aimed at the concept, but to the liaisons preconceived vision for the direction for their company.

The data showed that due to the projects being conducted by an external entity, they have an opportunity to influence the company more than an internal team could. As explained by the Senior RnD Manager at a Global Manufacturing Company, the students believing in a new market opportunity is something the company should listen to: “Because these students recognizing that there is an opportunity and telling us, there is an opportunity, yeah- These are people who are not in [our industry]. And if it's obvious to them that there is an opportunity, then it's something we need to pay attention to.”

Another data point showed how the projects can help in exploring new markets, as explained by the Senior RnD Manager at a Global Manufacturing Company regarding their interest to Indian and Chinese markets: “And then especially when engaging with universities in India and China, we certainly have a lot of questions to ask and to answer in emerging markets at the base of the pyramid.”

Furthermore, another data point shows how the liaisons can use the projects to drive the companies towards new industries outside their current core focus, as explained by the Innovation Lab Founder at an International Component Supplier:

I think that's some kind of global trend that's happening right now, that is, like, we shouldn't speak of purely [a technology related to our company's core industry] anymore. Technology itself is only a mean to an end, ... so we should speak about [the specific human need]. And [our company's core] industry is just one possible mean of [solving that human need]. And

potentially, the technologies that we developed for [our core industry] could have an application in other types of [solutions for the human need].

The data shows that the projects have been able to validate new directions for the companies. The Senior RnD Manager at a Global Manufacturing Company explained how the students demonstrated a new sizeable market: “Our business today is focused on a niche market, and this low-cost market is tangential to us. And the assumption within our business is that the tangential market is not something that we even approach. But this last year's project demonstrated that this is a sizable market. This is a relevant market for us to enter into. And they demonstrated the concept.”

Furthermore, the data shows that according to the liaisons the projects have been capable in creating change in their companies’ attitudes towards the new markets and industries. For example, Innovation Lab Founder at an International Component Supplier explained how they have managed to initiate the discussion on these new markets within their leadership:

At least it helps trigger some thoughts and some discussions, so we have managers debating whether it’s a good idea whether not to go into, to looking to the [alternative] business or the [another alternative] business or the aftermarket business. While before, this was not even a topic in the company. So at least it’s bringing some awareness that we might have some opportunity there, which I think in itself is a good thing.

The data shows, however, that while change is happening based on these projects, the change is slow to manifest. The previously mentioned liaison explained how the discussion has not led to any practical changes so far: “And while I think all four innovation directors start speaking about [the new industry], they are not yet all doing projects about [the new industry], and as you can see the catch here. There is usually a big gap between what innovation directors speak of and what they’re actually doing.”

In summary, the data has shown that the projects create value because the input is coming from an external source and by exploring new markets and industries, and that the value has manifested within the companies, although slowly.

Exploring and Validating Existing Ideas

While inherently very similar to *Exploring and Validating New Industries and Markets*, a need for a third sub-category emerged from the data. *Validating Existing Ideas* similarly emphasizes the existence of a pre-conceived idea or vision which would bring value to the sponsor if it was explored and validated. The data shows how in one of the cases, the liaison used the projects to explore risky or unrealistic ideas and concepts and how they provided value to the company. However, the data also shows how in the more recent projects, the liaison framed the projects in different ways, possibly suggesting that utilizing these projects for exploring risky concepts and ideas might not be valuable enough to be a core focus. Finally, the data showed how the validation of existing ideas can be a positive hindsight and by-product on a project that focused elsewhere. Overall, based on the data, exploring and validating existing ideas is not highly impactful for the overall value judgement.

The projects are used to explore and validate risky and unrealistic ideas. For example, the Senior RnD Manager at a Global Manufacturing Company explained about a risky idea they wanted to validate more concretely: “So, the reality was really for us, our objective was to test out a risky idea that was on paper. To test it out in academia and then share that.” Similarly, the same liaison explained about another project where they proposed the students a concept solution that the company had already deemed unrealistic: “The caveat is that our prompt was very solution fixated to begin with. So, it really was just an idea that had been posed that we didn't have any reason to believe could actually become a reality. And the students, they demonstrated in nine months they could make it a reality. So, the evolution of that idea has just been the acceptance of that idea.” It is important to note, that both of these examples were from previous projects, and that the fact that the liaison has shifted away from such briefs in the more recent projects indicates a limited value provided.

There was also data pointing out that the exploration and validation of the existing ideas is not always premeditated, but the projects can happen to explore and validate an idea that the liaison or the company has also been considering. The Product Manager at a Local Retail Company said: “So in a way nothing new, but some things that the research results have confirmed, for example about increasing our marketing and [stakeholder] communication. So like things we had given consideration to, but that we need to next, or it's about time we do it. So those have been emphasized here.”

In summary, the projects can provide some value by being utilized to explore and validate risky and unrealistic ideas and concepts within the company and how at times the validation of an existing notion within the company can be a non-premeditated side product of the projects.

Conclusion for Driving Change

To conclude, while wildly unexpected, supporting the liaisons in driving strategic change within the company emerged as one of the most, if not the most important benefits that companies get from these projects. Especially creating change in the culture and ways of working within the company was one of the main scopes of the projects in many of the cases. Similarly, exploring and validating new industries and new markets was central in defining the briefs, and thus the projects the liaisons were running. Exploring and validating other existing ideas emerged to some extent, but held little significance over the overall value judgement of these projects.

Developing Human Capital

Developing Human Capital is a category that combines various ways in which the company and the liaison can develop their workforce through either supporting the recruitment of new employees and through developing the understanding and knowhow of their existing employees. The sub-categories are *Developing Design Process Understanding*, *Recruitment*, and *Developing Knowhow*.

Developing Design Process Understanding highlights ways in which companies imitated and disseminated the design process within the company and several personal insights in which the liaisons understood some critical aspect of the process better. Overall, it can be considered a value adding aspect, but not a core source of value.

Recruitment was a prevalent form of value as the courses helped both in the recruitment process as well as in the employee marketing aspects. This source of value emerged in most of the cases as a meaningful source of value, and in one case was extremely impactful, explicitly being enough to make the project valuable even if the project outcome was not good.

Developing Knowhow captured the rest of the knowhow development that doesn't fall under the design process. The projects can function as a stimulant to the individuals in the sponsoring company to rethink their assumptions and processes. This was of significant importance to at least one of the liaisons. In addition, the projects gave the liaisons opportunities for personal development. Overall,

besides the aforementioned case, the sub-category can be considered a value adding aspect, but not a core source of value.

Developing Design Process Understanding

Developing Design Process Understanding focused on the practical application and the process of design used for the courses. It is that process orientation that separates it from *the Creating Change in the Ways of Working and Culture* where the focus is a lot more mindset and culture based. Also, another significant difference is that from the collected data, it did not emerge as something the liaison would drive for but was more of a nice-to-have, sometimes also unexpected addition. The value comes from the liaisons being able to imitate the process in internal projects, being able to use the projects as examples to disseminate the process more widely within the company, and as personal learning experiences. The personal learning experiences that emerged were related to understanding how the process is problem-oriented and the value in approaching it that way as well as how important aspect the (re)definition of the brief is in the process.

The data shows that companies are using the course to learn about the process and even disseminate it within their company. For example, in conjunction with the first time the Global Manufacturing Company did one of these projects, they attempted to utilize the course process internally as elaborated by the Senior RnD Manager:

We had one project, a [product] development project, where we co-opted the [courses] milestones. I say co-opted because it was during the first project, so we had very preliminary understanding, and obviously we weren't - we didn't do this under the guidance of somebody from [the course].

The data shows that the companies also disseminate the course processes utilizing the projects as examples, as explained, for example, by the Senior RnD Manager at a Global Manufacturing Company: “We have like a what we call a discovery series. ... every now and then we take one of those spots for an innovation project. So, we will share that project, walking through- Especially when we talk about [the course], we spend some time talking about the process. Like the iterative prototyping process.”

A few aspects of the process emerged as take-aways for the liaisons. One of them being how the process focuses on problem space a lot more than the solution space. For example, a Senior RnD

Manager at a Global Manufacturing Company highlighted how eye-opening and surprising it was that the process is focused on the problem instead of the solution: “I guess it was my first epiphany of the project, saying whoa, this is not about designing a product or a process, but it’s the actual evolution of proposing a solution from a multidisciplinary, interdisciplinary point of view. ... It’s a very holistic in nature in how to approach a problem. ... And this is more open to creativity and focus on finding the best way to solve a problem.”

Another aspect that emerged as a take-away for the liaisons was the importance of re-defining the problem. The Innovation Lab Founder at an International Component Supplier reflected on a session they had with the course staff and key stakeholders to define what they actually want out of the project:

So, we organized a one-day kick-off with the whole team to define together what could be the perimeter of the exploration, what’s the brief, how do we phrase it. And it’s incredible to see how much information, how much insight you get by just trying to define what’s the goal we want to achieve. And I’m afraid to say that’s not something we do often in [our company]. And I was surprised to see the good results that came out in such a short time, just by doing design thinking within the company for the team, and not even speaking about end-user, but just focusing on what’s the need of our director, our manager, our team members. And in different units. So that was sort of the first insight for me.

The interesting aspect is that this liaison is extremely familiar with the process, so it was unlikely they expected to gain significant value by learning about the process, and yet they still learned something new and were delighted about it.

In summary, the projects provided value to the liaisons by serving as examples of the process that could be disseminated within the company, acting as examples on how to implement the process within their own company, and providing them with a few process related insights about how the process is very problem oriented as well as how important proper problem (re)definition is. Overall, based on the data, the *Development of Design Process Understanding* was not a key purpose for taking part in the projects for the liaisons, but did occasionally offer meaningful delight or utility for the liaisons.

Recruitment

The development of human capital through recruitment of students emerged as a value in three of the cases. The data showed that the opportunities that the courses provide for recruitment are significant, both in the perspective of liaisons as well as the company leadership. The data highlights that the courses can help either directly with recruiting the students and as an excellent form of a job interview, and indirectly as employee marketing. The recruitment can help fill in knowhow gaps that exist within the companies. Also, as highlighted in the *Driving Change – Creating Change in Culture and Ways of Working* section, recruitment is an important tool for culture change, but can be difficult if the culture in the company is too traditional for the students.

The liaisons were very explicit about their interests to recruit students from these courses. For example, the Senior RnD Manager at a Global Manufacturing Company highlighted it and even emphasized how the leadership of the company also considers it important: “Facilitating that connection definitely, or you know, connecting the students with our recruitment offices. ... because that's what I've been hearing from senior leadership lately.”

There was also data that showed the recruitment can be a key benefit for participating in these projects. In the case of the International Component Supplier, the Innovation Lab Founder stated that for their boss, the reason for originally participating in the courses was for recruitment and that the liaison being part of the company was an example of this: “Originally, the intent of [my boss] was to use the program as a way to screen for potential recruits. So, people to actually hire at the end of the program.” The liaison then clarified that they were an alumnus of the program and they “were hired by [their boss] even before the [end of the] program”.

It also emerged that the projects are the best form of screening, or of a job interview. The Innovation Lab Manager at the International Component Supplier explained: “I guess the program is the best job interview that you could have. It's way better than just seeing somebody for one hour and switching.”

As for the reason for hiring, the data shows that at least one of the reasons is to cover gaps in their companies own knowhow, as explained by the Director of Business Unit at an International B2B Service Provider: “We do not have – in [our company] – [this project] related knowhow, so that would be something I would be interested in finding.”

In addition to directly recruiting the students, the value of employee marketing emerged strongly in one of the cases. The Director of Business Unit at an International B2B Service Provider highlighted the value of the projects in employee marketing because while they work in a somewhat traditional industry, there is a lot of technology behind their services that would be interesting to the students if they were aware of it: “I thought about this kind of image as an employer, because [our company] has been seen as this kind of a boring company. So strictly to improve our image, I wanted to come and tell that we do many different kinds of things and that we are an attractive place to work at even one might not initially think about what kind of tech is behind the services we provide.” The difference between the direct recruitment and employee marketing is that the recruitment is (often) linked to the liaisons team, when in employee marketing the aim is to create awareness in other parallel projects.

The importance of employee marketing, or even recruitment overall, was highlighted in the same case where the liaison said they would be satisfied with nothing coming out as the project outcome, because of the value provided by being able to do employee marketing through the course: “You go into these from a different angle compared to purchasing a project from another company, with whom you wouldn’t accept it if they didn’t come up with any results ... but to this project I went with the attitude that nothing might come out”. When further questioned on the rationale behind it the liaison stated that “as I mentioned earlier, I went into this with mindset that it could be for example employer marketing”.

In summary, many of the cases in the data showed interest and value in the recruitment benefits that the courses can offer, both by the liaisons as well as the company leadership. For some, it was a meaningful side product, while for others it was important enough to justify a possible non-existent project outcome. The data showed that the courses can help either directly in recruiting the student team, or indirectly through spreading awareness of the company and the kinds of projects they are interested in. For the direct recruitment, the projects are an excellent form of a screening and interviewing.

Finally, the data explained one way in which the recruitment is valuable for the company, which is through filling in gaps in skills and knowhow. It is important to also be aware of, as it was highlighted under *Driving Change – Creating Change in Culture and Ways of Working*, that recruitment is an important means-to-an-end in creating culture change within their company, which was overall

considered a key value from these projects, but also how the cultures of those companies can be a barrier for recruitment.

Developing Knowhow

Besides the more specific development of design process understanding, there were also cases where more generic knowhow development was beneficial, and it showed on both the company level as well as in the liaison's personal development. The data shows that there is a need for external input to help the people in the sponsoring companies to rethink their assumptions and ways of working and how the liaisons see that the projects can help with that, especially through the frequent interactions caused by the projects. Additionally, the projects can offer other learning opportunities such as developing as a manager as well as learning how to use contemporary networking methods that can provide better outcomes than traditional methods. Finally, the data shows, if only weakly, that the projects actually manage to develop the working processes of the liaisons.

The data shows how staying in the same company and environment for an extended period makes you normalize the way things are done. The Innovation Lab Manager at an International Component Supplier explained:

It's all the more important that it's very natural when you are involved in a project or in the company for a long time, you adapt. It's really what people do. It's human. You adapt. And when you adapt, you tend to take what surrounds you immediately as normal. Even if it surprised you, even if it shocked you when you entered the company. Two years after, it's like normal. Otherwise, you get some cognitive dissonance.

However, being able to question one's assumptions and ways of working is important in both leadership and in innovation. The liaison also explained this:

I believe that it's always actually very important to question yourself and the way you work regularly. Especially in innovation, if you want to move, if you want to always be in front. You need to be the one that questions their own way of doing things.

The projects help the liaisons and other people from the company question their own processes. The Innovation Lab Manager at an International Component Supplier highlighted this: "[T]he added of value is that when you get people involved with students, and when you get people who are old in

the company involved with students, it always has great effects, because it makes them rethink about their own process, so it always makes people move.”

While there are other ways to expose oneself to external environment to help with the rethinking of one's own assumptions and processes, the frequent interactions that are a part of being a liaison of the projects are effective, as explained by the Innovation Lab Manager at an International Component Supplier:

And so, being in contact with the outside, in an environment that's completely different is, I think, one of the best ways to questions yourself. ... So getting involved in a one year program is by small touches getting feedback about learning in a specific environment. Think about all the specificities of that environment and maybe you can erase some of them, or like get (around).

In addition to helping oneself rethink one's assumptions and processes, there were other ways in which the projects helped the liaisons develop their knowhow. The data shows how the projects can be a good opportunity to develop as a manager. For the Senior RnD Manager at a Global Manufacturing Company it was a significant learning opportunity to manage people related to a field in which they themselves did not have expertise in:

Since I'm relatively new in my career, is I've learned how to lead a group of people without necessarily knowing all the answers, if that makes sense. So, I haven't been in a management role before, but from what I understand, to be a manager you need to be able to lead people without being an expert in everything that they are doing. So, being able to lead the students and direct them in the right way, even though I don't know where they're going to go and I don't know what the answers are going to be, that's something that's been my biggest learning.

Another way in which the data highlighted personal learning was through the broader networking processes that the student embrace. The Director of Business Development at an International B2B Retail Company reflected how their own capability is limited by the traditional processes, and how the students managed to gather a broader set data due their more contemporary methods:

So, another thing is of course how these younger people network and how their networks work and how broad they are, so that was quite eye opening how connected these people are ... I

am not in that age anymore and I work in a certain framework set by the corporate world. ... They did quite a large number of interviews and gathered market information very broadly, if not completely globally, then very close to it. And I mean they did 60 interviews. So that, for me, is a good reminder what kinds of opportunities these tools offer if you use them intelligently.

Overall, the data had little indicators of the effectiveness and level of dissemination of these learnings within the company, however a single datapoint did emerge. The Director of Business Development at an International B2B Retail Company explained how they personally were impacted by the learnings through the course, but they were uncertain if it had a broader impact within the company: “I can’t answer that very well. On a personal level, yes. To what extent it has influenced my colleagues, I cannot answer. I hope so.”

In summary, the data showed how there is a need for an outsider influence to help the people in the sponsoring companies rethink their assumptions and processes, and how the projects can help in doing that, especially because of the frequent interactions during the project. The data also shows how the projects can be used for personal development in management, as well as in networking processes. One of the liaisons considered the projects ability to assist the companies with rethinking their approaches very important, but overall, while it is difficult say based on the data, it is more likely that the knowhow development is a nice bonus and not a core part of the value formulation.

Conclusion for Developing Human Capital

In conclusion, some of the sponsors found significant benefits from developing human capital, especially through the marketing and job interview aspects of the *Recruitment*. Developing knowhow, would occasionally provide benefits to the liaisons, but interestingly they were more focused personal development, over developing the rest of the company. Finally, *Developing Design Process Understanding* would also occasionally provide situations where the liaisons felt the benefit of learning something new, but seemed to be more as an additional delight than a core source of benefit.

4.3 Benefits - Nature of the Project Outcomes

In the preliminary coding, the value of gaining new ideas, products, services and concepts was explicitly and frequently mentioned in all of the five cases. For example, the Product Manager at a Local Retail Company said before the project that they want “some deeper working on [their] product portfolio, or like with the product concepts and product ideas and services” and the Director of Business Development at an International B2B Retail Company said that originally one of the two things they wished to gain was “the actual [product], or the [product]-concepts appearance, how it works and what material it would be”. However, as the projects developed and the later interviews were conducted, the liaisons were better able to formulate the nature of what was and would be a valuable outcome in the terms of ideas, products, services, and concepts. The same Product Manager at a Local Retail Company for example in the second interview said that they are hoping for “maybe a bit more concreteness so, that it would show, ... in addition to the one big [product line] direction, smaller parts, which [they] could utilize faster instead of in the long term”. This transition from abstract definitions such as new products and ideas to more concrete descriptions of the nature of what is valuable, lead to a revision of the original coding. Based on the analysis which looked at all the interviews in parallel, three different categories emerged: *Novelty*, *Concreteness*, and *Validity*. Furthermore - for the sake of clarity of communication - this paper will treat ideas, concepts, services, and products as simply as project outcomes.

Novelty

One of the most significant needs for the liaisons was the generation of new ideas and gaining fresh perspectives, especially ones that are different from anything they have thought of internally within their company before. There was a need for *Ideas for Products*, *Product Lines* and *New Markets* as well as for the *Fresh Perspective* brought by the students’ teams unfamiliarity with the industry. *Generic Ideas* was added due to the prevalence of data over ideas that did not easily fit into ideas for products, but also did not form their own sub-categories. Over the categories, there was significant need for ‘out of the box’, ‘never seen before’, and overall novel ideas, and the data shows that in many of the cases the liaisons saw that the students and the projects are uniquely qualified to provide that value over professional consultants. The push for *Novelty* of the ideas was so strong, indeed, that some of the liaisons were happy to sacrifice *Concreteness* in order to get those never seen before ideas.

Ideas for Products, Product Lines, and New Markets

When talking about products and services, the terms were used very interchangeably. For example, the Product Manager at a Local Retail Company first talks about both product and services, but already in the next sentence simplifies to only products: “Overall the deeper product development or service development process, where the products which we have in the future in the store...” Therefore, the term product, in this case, will be considered to also include any services and product-service combinations. Furthermore, from the data it was difficult to discern clearly what is the difference between ideas for a product, ideas for a product lines, and ideas for new possible markets, and especially where to draw a line between them, and therefore they were grouped under a single sub-categorization. The liaisons utilize the projects to find new ideas for products, and for few of them, this was a key reason for participating. The obsolescence of their existing portfolio emerged as one of the reasons for wanting new products, and utilizing key stakeholder understanding as an inspiration for the new products emerged as an approach. Finally, the new products could help the liaisons explore new market opportunities (which was highlighted as important in the *Driving Change* section).

The data shows an overall interest in expanding product portfolios. For example, the Product Manager at a Local Retail Company said that it was one of their main expectations through development “on [their] product portfolio or with the product concepts and product ideas and services... and finding something new and of a new type.”

Similarly, for getting ideas for new products with business potential was the best outcome, as explained by Director of Business Unit at an International B2B Service Provider:

For example, some incredible [product ideas]. They don’t need to be anything very specific or anything like that, as long as there are some kind of [product ideas] which we could then combine together and in which we could find some business potential in one way or another. That is probably the best outcome that I can imagine.

One of the reasons for why there was interest to get new ideas for products was due to the obsolescence of their existing product portfolio. The Director of Business Development at an International B2B Retail Company mentioned that in this year’s project they will focus on replenishing their core offering by “bringing forward ideas about the [core product category], and

what kind of concepts and [products] we could substitute in to [replace] the products which the new [law] makes obsolete.”

One of the methods that emerged as a source of for the ideas for new products was through the understanding of key stakeholders. For example, it was important that the key stakeholders can be visible in the new products, as explained by the Product Manager at a Local Retail Company: “Some kind of [locally] originated products, so in the best case it is so that all the [local stakeholder] are represented through the products and the products tell their stories.”

The use of these product ideas as a tool to push the company to new markets (which was also highlighted as a value as a part of the *Driving Change – Exploring and Validating New Industries and Markets*), also emerged as an important aspect. The Innovation Lab Founder at an International Component Supplier was looking to explore and “push the [company]’s territory outside the traditional” industry. Similarly, the Senior RnD Manager at a Global Manufacturing Company told how they valued finding – and later on demonstrating – a previously overlooked customer segment.

In summary, the data showed that getting new product ideas is important to the liaisons, that obsolescence is one of the reasons for this, and that users serve as an expected inspiration for the products. Utilizing the new products to access new markets was also considered valuable.

Fresh Perspective

Fresh Perspective highlights the value of having students work on a project where they have no existing conceptions and biases towards the company or the industry, allowing them to come up with more novel concepts. For example, the Director of Business Unit at an International B2B Service Provider said that the students “will look at things at a completely different perspective or benchmark something completely different.”

An aspect of the fresh perspective was highlighted as the students are not being subject to the same basic assumptions and biases within the field. For example, the Senior RnD Manager at a Global Manufacturing Company phrased it in the way that the students don’t have the same paradigms as professionals:

That just blew my mind in the fact that [the students] have pretty open minds. It’s like gathering a group of kids and you tell them, how do you solve the problem, right, and they

just come up with great ideas on how to solve ‘em, without- because they don’t know, they have a fresh mind. They don’t have the paradigms and as you learn more from something... you always have to be going away from that, trying to spread the wit.

Similarly, it was emphasized that the students have this benefit even over external, professional consultants. The Director of Business Unit at an International B2B Service Provider said:

We have certain challenges with our design process for example, so I thought could we get some additional content from having these students, which are not marinated to [our company’s] world in a way that some consultant might even be... So, we wanted the sort of really outsider thinking from a consumer perspective.

Finally, the core aspect of Novelty, something that hasn’t been seen before was very strongly part of the Fresh Perspective part. Already highlighted by previous quotes, but also, for example, the Senior RnD Manager at a Global Manufacturing Company explained it explicitly, by saying that the optimum would be to get something that they haven’t seen before:

I would say creativity and innovation, a new perspective. Ideally, we want to see something that we push towards, a product and market. To be quite honest, [one] that’s gonna disrupt an area, that we have a gap. Or that we haven’t seen, right? So that would be, I guess, the optimum would be that.

Overall, the unfamiliarity the students have towards the industry and the company was perceived as a very positive aspect and a key contributor towards the novelty as well as the overall value of the project.

Generic Ideas

A majority of the mentions regarding idea generation remained on a level, where clear and justifiable sub-categorization did not emerge. However, overall the concept of generation of ideas was very prevalent and significant. For example, a Director of Business Development at an International B2B Retail Company said that they would like to get some “ideas into [their] innovation pipeline”, which is a clear call for ideas, but hard to establish if the ideas are of products or something different. This sub-categorization is quite straight forward where the main unifying theme was a push for Novelty,

or something never seen before. The data showed that for some liaisons, the push for something novel was so strong that they were ready to sacrifice some *Concreteness* for it.

There was a significant push for something novel. For example, the Director of Business Unit at an International B2B Service Provider said that they “would be delighted if they would get something innovative, like something completely out-of-the-box, even absurd thoughts”.

Furthermore, the data showed that the liaisons saw that the students were uniquely qualified to generate them, even more so than for example professional consultants. For example, the previous liaison added that they “wouldn’t expect that a [professional] consultant would come up with any out-of-the-box ideas, necessarily. But that from the students, on the other hand, I would expect a bit more, that they might ‘rev the engine’ a bit with it”.

The data also showed how in some cases, the liaisons preferred the *Novelty* of the ideas over more *Concreteness* such as a really good prototype or a really detailed concept. For example, the Senior RnD Manager at a Global Manufacturing Company explained how they prefer thought leadership over mind blowing prototypes:

We would present an idea that was really foreign to us, uncomfortable for us, and like I said, like Horizon 3, 15-year kind of idea. And so, our expectation at the end is that the students will deliver, not so much a prototype that blows our minds, but some real thought leadership, you know, through all their research and their need-finding. That they're going to make some statement about this market or this direction that will be the most valuable to us.

Similarly, the Director of Business Unit at an International B2B Service Provider described an ideal outcome was a real game changer idea, even if it was halfway done:

That they will bring an idea to the table which hasn’t been- like in a way a new way of thinking. Like a game changer -idea, even if it was totally halfway done, but which opens [it] up and suddenly you see that there is some new possible way.

In summary, there was also a significant amount of data of ideas that didn’t fall under the umbrella of product ideas, but also which did not form any other justifiable sub-categories. There was, however

a lot of emphasis on the *Novelty*, or never seen before, aspects of the ideas, to the point where some of the liaisons were happy to sacrifice *Concreteness* of the project outcome.

Conclusion for Novelty

The data showed how the liaisons saw the students being uniquely qualified – better than even professional consultants – to produce novel ideas in their projects, partly explained by the fresh perspective they could bring. They had a need for new ideas both for new products, product lines, and markets, as well as in more general terms. The data also showed that the liaisons were happy to sacrifice *Concreteness* if that ensured more novel outcomes.

Validity

Validity is about showing that the proposed concept is either well-founded or validated. Potentially due to the course process, the *Validity* came up on a very specific level, roughly following three pillars of the design process: user desirability, technological feasibility, and business viability. This was highlighted, for example, by the Innovation Lab Founder at an International Component Supplier: “We need the students to... create not only the solution technically or in terms of user experience, but to imagine what’s the business model that goes with it, and how we can bring the organizational change in the company that allow us to produce it and to sell it.” As the data closely follows the three pillars, the results are presented in the similar format: *Shown User Desirability*, *Shown Technological Feasibility*, and *Shown Business Viability*.

Shown User Desirability

Shown User Desirability presents the aspect that the project outcome is somehow shown to address the various users’ needs more thoroughly than just the designer’s perspective.

On one end of the scale, there is the solid understanding of user needs that leads to a well-founded project outcome. This was supported by the Senior RnD Manager at a Global Manufacturing Company when they highlighted the importance of understanding the users you design for: “This is only gonna work if they get the close connection with the industry, and they get the close connection to, you know, the end user where they’re trying to propose a solution to. So, I think the engagement and communication between the industry, the student, and the end user is vital.”

On the other hand, there is the validation aspect, where the team creates a prototype of the concept and shows its merits. This was explicated by the Innovation Lab Founder at an International Component Supplier: “And when I say a pilot, I mean not just a product that works, but something that’s installed, let’s say, [in an actual use case]. And to get some feedback on the use of this in the real context of use, like not just for show or not just [in a closed environment], but in a real [environment] with real [users].”

In summary, while the data is sparse, it highlights two distinct aspects of *Validity* in the user context, where in one the validity stems from a good user understanding and where in another it comes from validating the concept with users.

Shown Technological Feasibility

Shown Technological Feasibility means that the concept is shown to be technologically feasible with either current technology or at least believably extrapolated to be technologically feasible within a reasonable timeframe. Similar to the user desirability, it could in principle happen through research or through demonstrating the technology with a prototype. However, in the data the liaisons showed little emphasis on the projects demonstrating technological feasibility and, on the contrary, wished that the students focused less on the technology side. For example, the Director of Business Unit at an International B2B Service Provider reflected on their wish on business orientation over technology: “So then I noticed, that they maybe stayed quite a lot around the technology, and that I would have maybe hoped more towards business.”

The data also showed that proving the technological aspects is not important, because many of the case companies have a lot of engineering knowhow. For example, the Innovation Lab Manager at an International Component Supplier elaborated that they can handle the technological aspects but they want the ‘must-have’ user experience defined:

[Our company is a] technical company. We’re just engineers, meaning that a lot of [our company] people are engineers, and so if there are technical problems, we should be able to go over them. But then, what we like as a company, or at least when you launch a project like that, I think that... what the project can work on that [our company] cannot, is the design. But more than the design – the experience of it. Like really defining an experience and the must-have of the experience.

In summary, while some of the data shows that showing technological feasibility is an expected value out of these projects, the data also shows a significant push-back on how much of the project focus should be on demonstrating technological feasibility. Interestingly, there was lack of similar push-back on having too much *Shown User Desirability* and *Shown Business Viability*, which might indicate either bigger importance on the other two aspects, too much of an emphasis on the courses on showing technological feasibility, and/or high capability bias for the companies towards technological knowhow.

Shown Business Viability

Shown Business Viability is showing that the concept has a viable business opportunity behind it to ensure that the company can turn the concept in one way or another into a benefit. While it was a frequently mentioned, it is difficult to see from the data how the liaisons expect the viability of the business model to be proven. This means that it is possible that there is overlap with the *Concrete – Detailed* categorization, if the liaisons are only looking for an explanation to how the concept might be commercialized and not expecting establishing the validity of the model. For example, the Director of Business Unit at an International B2B Service Provider explicated the need for commercialization, but leaving it unclear whether validation is needed. The liaison explained about the best-case scenario: “That we can see the monetary value – so that is probably the biggest thing – that it is worth doing”.

Similarly, the Innovation Lab Manager at an International Component Supplier highlighted the importance of taking the business aspects into consideration in the decision-making process towards the final project outcome, but did not elaborate what forms of *Validity* needed to be demonstrated:

We said: “Okay, if we can’t choose like that, if we can’t make a preference based on needs and feeling – even gut feeling – then design thinking is about- is not only desirability. It’s like meeting viability, feasibility and desirability.” So, we proposed the students to take two weeks to weight on each side. At least the business viability and all their arguments that they had listed, they had listed the priority of it, and say like in two weeks come back to us and say: “Okay. What is just your conclusion based on your criterions including on kind of viability thing. Tell us which one comes out of the game.” And so, they did try to assess largely what [business] viability was, and as company, viability is very important.

In summary, business viability was considered an important aspect of the project outcome, but from the data, it is difficult to highlight any concrete steps towards the expectations towards the validity of the concepts business viability. More generally, three of the companies had a significant amount of discourse and put significant importance on the business viability category, when again two of them made no mentions about it.

Conclusion for Validity

Overall, *Validity* simultaneously came up in the interviews surprisingly little and was discussed as if it was an obvious part of the projects. This makes it extremely difficult to gauge the level of importance of the *Validity* aspect in the value judgement for the liaisons. The data related to the user desirability demonstrated how *Validity* can be gained through well founded understanding and research, or through validating it through prototyping. The data also demonstrated how the students, projects, or courses might have too much emphasis on the technological feasibility compared to what the liaisons need or expect. Finally, as to the business viability, the liaisons put a lot of emphasis on its importance. However the data showed little indication as to whether the liaisons expect more details or concreteness on how the project outcomes make business sense or do they want better *Validity* through e.g. research or testing.

Concreteness

Concreteness explains how specific and defined the project outcome is. There was little push towards highly functional prototypes, instead the data showed a definite need for more *Detailed* concepts. For example, the Innovation Lab Manager at an International Component Supplier explained how they need more than a drawing: “When you’re somebody like [our company], when you arrive at that point, if you want to push this thing further or at least prove something to more people, you need more than just ‘[the project] actually ended up as a drawing’.” Additionally, the liaisons expressed an expectation towards project outcomes that are *Realizable in Short-Term*. However, the data also suggested that there might be a conflict between *Concreteness* and *Novelty*.

Detailed

There was actually surprisingly little push for a heavily functional prototype as the final project outcome. Instead there was an expectation for the concept being detailed in a sufficient level of specificity. For example, the Innovation Lab Manager at an International Component Supplier explained how they expected for example design guidelines, next steps, and constraints:

But then, I guess I would expect more like design guidelines. If you go further, what would be some first test specifications of [this part of the concept]? Because that would actually speak to engineers too. [If the students would say:] “Seeing like there are some constraints that we discovered when testing it. We should use that type of [component] instead of that one. And then there are some constraints in terms of how to warn the [user], ... If you put that on the right-hand pillar, then you may have centered it, since in the middle you may not see it.” These kinds of feedback and specifications could have made the, let’s see, the concept a bit more defined. There, we feel like we have a starting point. We have something to discuss with [a potential business partner] and say: “Are you entrusted in the broad concept?” But if we wanted to go further, we have a lot of design work left that I think would have been great if the students could have tackled it a bit more.

The data also showed that while they are very similar, there is a distinct difference between *Validity* and *Concreteness*. The Innovation Lab Manager at an International Component Supplier explained how they didn’t expect more validity through research, but that the students would have explicated the concept more:

We don’t need more data, we don’t need more analysis. Of course, it’s always interesting to read reports, but I think we need the student to go one extra step and to think of how the solution can happen, how they can turn it into something tangible, and to create not only the solution technically or in terms of user experience, but to imagine what’s the business model that goes with it.

Finally, as can be seen from the previous quotes as well, there was a fair amount of unfulfilled expectations that were linked directly with the lack of concreteness of the concept. As another example, the Product Manager at a Local Retail Company said that the concept “will indeed require quite a lot of work before we can begin to implement it as a whole” and following that some abstractness “was an expectation, but this was even more abstract than expected”.

In summary, there was a lot of dissatisfaction regarding the level of concreteness in the project outcomes, and a big part of it was due to the lack of details as to what the final concept actually is. Furthermore, the data also showed a distinct difference between the *Validity* and *Concreteness* in the project outcomes.

Realizable in Short-Term

In three of the cases, the outcome being something which the company can realize in short-term was a crucial value aspect for the project. For example, the Director of Business Unit at an International B2B Service Provider said that the best-case scenario would be, “of course, if we would get some kind of a concept model which could like- something we could immediately start thinking about how to make it happen, then that would definitely be it. Like how can we start working on it”.

Similarly, while the Product Manager at a Local Retail Company was happy about the big picture the students proposed, they still were hoping on something they could act on and take to their customers sooner: “Something implementable in the near future, because the design direction is a [bigger concept], so we know we will need a lot of support before it will be able to introduce it to customers, so in a way I hope that it would have some smaller parts that we could implement.”

The concept of short term might also change a lot from company to company. The Innovation Lab Founder at an International Component Supplier mentioned that they would be happy to get something that they can realize quickly, but also specified that it means one and a half years for them: “[W]e can start, I don’t know, selling something by maybe not the end of this year but, let’s say, the end of next year.”

Finally, and on contrary to the rest of the data, there were also mentions where short-term realization is valuable, but ensuring the exploration and novelty is more important. The Senior RnD Manager at a Global Manufacturing Company explained how the more exploratory projects might have to sit on a shelf for a couple of years before starting to work on them:

In an ideal case, it'll go into a business today, a business that's ready for it, and often that would come from a prompt that came from the business to begin with, but when we look at these more exploratory prompts, which I think is where we wanna be and where [the course] wants to be - we might actually have outputs of [the course's] projects that just sit for a couple years before we have the ability to put them into action.

In conclusion, the data demonstrated a lot of push for project outcomes that can be realized in the short term, but it also highlighted how it might be in conflict with being able to do more exploratory and novel projects.

Conclusion for Concreteness

To conclude, there was actually little push for highly functional final prototypes, and instead the main push in concreteness was towards more detailed concepts. The data demonstrated a difference between the *Concreteness* and *Validity* aspects of the project outcomes, and that the *Concreteness* might be in conflict with the novelty aspect.

4.4 Benefits - Stakeholders and Ecosystems

As the companies are operating as parts in larger ecosystems, it is somewhat natural that one of the emerged categories is related to the other parts of the ecosystem, with special focus on their key stakeholders. The stakeholder aspects are divided to understanding as well as developing the relations with the stakeholders. The rest of the ecosystem is separated to market understanding, competitor understanding and more generic ecosystem understanding. While the traditionally stakeholders can be divided to multiple categories, due to the limited amount of data, it was hard to justify further division of the stakeholders to various subgroups such as customers, users, partners.

Stakeholder Understanding and Relations

Understanding Stakeholders, especially end-users is a central aspect in the design principles, so it is in no way surprising that it emerged from the data. Interestingly, the liaisons also saw the projects as beneficial to *New and Improved Stakeholder Relations* through improving existing stakeholder relations as well as either directly or indirectly supporting the companies in fostering new stakeholder relations. Overall, it was somewhat surprising that while the data demonstrated that the liaisons considered it beneficial, it was not a core value provider, as one might expect due to its prominence in the design principles and processes. The data might point to a possible reason for this: the value of understanding stakeholders and engaging in stakeholder relations is a means-to-an-end for other more significant forms of value, such as *Novelty*.

Understanding Stakeholders

The understanding of one's key stakeholders held stated significance to two of the five cases. The data showed that understanding their users can be beneficial both overall and to companies that are

already customer-centric in their processes. The data also showed that one of the reasons why companies benefit from gaining stakeholder understanding through the courses is because they don't have the resources to do user research on top of their day to day activities. Furthermore, for some companies, the value of the projects is in the learnings and understanding created during the project over the final concept itself. And finally, the data might show that user understanding is not beneficial on its own, but more of a means to an end to other value categories such as *Novelty*.

However, stakeholder understanding overall was not a very significant category either in stated importance or in the number of mentions, so the stakeholders were kept as a single category.

On the most fundamental level, much in line with the design process, stakeholder understanding is about understanding the needs of your users. For example, the Director of Business Unit at an International B2B Service Provider explain: "If they came to tell me that this specific target group wants exactly this, then that would already be a good signal for us."

The data shows that even the companies that are well-connected to their stakeholders they can still benefit from the stakeholder understanding that the projects bring through additional confirmation or adjustments. The Director of Business Unit at an International B2B Service Provider explained how they work along their customers, but still can't be sure they are at the core of their users' needs: "We have quite a good picture, so we do all of our product and service development alongside customers, so customers are involved in everything what we do. But are we still always exactly at the core of it, that I am not sure about?"

One of the reasons why gaining stakeholder understanding is valuable is that the companies might not have resources in their day to day activities to conduct such exploratory projects. For example, the Product Manager at a Local Retail Company explained how they don't have time to do customer research: "We haven't had time, in the middle of all the practical work, to do customer research, or to interview, or to delve into that."

The data also highlighted how for some of the liaisons the stakeholder understanding is more important than the final concept itself. For example, the Senior RnD Manager at a Global Manufacturing Company explained how the products that they would create based on the projects would be different from the final concept anyways, so therefore the learnings are more important: "Right, cause the students are going to develop a prototype based on a concept. The products that we

would actually develop out of that would likely be different, but we would- It would be more about taking the learnings from the students. So, our expectation at the end is that the students will deliver, not so much a prototype that blows our minds, but some real thought leadership, you know, through all their research and their need-finding.”

Overall, both the stakeholder as well as the user understanding showed up in the data with importance in two of the cases. However, the lack of stated significance for the rest should not be directly assumed for a lack of importance in the design or project processes, merely that it is possible that stakeholder understanding is an intermediary step in creating some of the more prominent value categorizations such as *Novelty*. This might be observable in, for example, the Senior RnD Manager at a Global Manufacturing Company telling about a meeting with an expert familiar with the end-users: “They had a pretty good, very constructive meeting with this person because that *brought them*[Emphasis added] closer to the end-user.” The emphasis in the wording is on how the students benefitted, not how the liaison or the company benefitted. In other words, *Stakeholder Understanding* might be a means-to-an-end.

In summary, the data showed that stakeholder understanding is valuable overall and even to companies who already are already using user centered processes; that the reason for it being valuable can be a lack of resources to do it themselves; and that for some it is more valuable than the final concept itself. Finally, the data might imply that understanding stakeholders is a means-to-an-end for something else, like *Novelty*.

New and Improved Stakeholder Relations

Finding new stakeholders focused more on the partnership side than on the end-user. The benefits of the projects towards stakeholder relations can be roughly divided to two aspects: enabling new stakeholder relations and improving existing stakeholder relations. However, it is difficult to draw a line where one ends and another begins. The emerged benefits were about identifying and connecting with new partners both directly and through the university network, creating new connections within existing stakeholder groups, improving the relations with existing stakeholders, and actually creating (not finding) new partners. While in one of the cases, the stakeholder relations theme emerged while discussing the best-case scenario, overall, there were little indicators in the data as to how important or unimportant, the stakeholder relations aspect was.

The data shows how companies can utilize the projects to identify and connect with new possible partners. For example, the Innovation Lab Manager at an International Component Supplier explained how they already during the process contacted two new partners and utilized the project outcomes as a starting point for discussion:

We had two concepts, and we decided to contact directly some either potential partners or customers that we could push the concepts further with. So, we contacted [a public institution], which is in charge of [our industry], for [one] concept. And for the [other] concept, ... we have a contact with a ... startup, that we're talking to see how they could be interested in the concept and working together.

The university network behind the courses was also raised as a way to make connections with companies one might not have access to otherwise, to create potential new partnerships. The Innovation Lab Manager at an International Component Supplier explained that the network can bridge the gaps:

When you work with somebody ... you access a network, and the network you access when you work with a student program is not the same that you will access when you work with a private company. And often actually, going with academy program helps you bridge gaps between different companies. It's like you can talk with a student or a teacher that would tell you "Yeah, actually to another guy who does exactly the same thing as you" in a company you didn't know. Or in a company you know, but you have no access to because of strategic matters or anything.

In addition to creating completely new partnerships, there was also a need for engaging more with stakeholders from existing stakeholder groups. The Product Manager at a Local Retail Company explained it would be important for them to create more awareness among one of their key stakeholder groups and also engage them more: "So some [from our key stakeholder group] have heard about us and some have not, so then we could be more systematical that a majority of them have heard about us, and would know ... that they can be involved, and show their capabilities."

On a very similar note, improving the relations with the stakeholders emerged as benefit of participating in a project. The Product Manager at a Local Retail Company explained how they want

a deeper connection with their stakeholders: “[G]etting some concept that in the future could better connect to [our stakeholders]. ... so, finding a deeper connection with them.”

Finally, not so much creating new partnerships as creating new partners, emerged as an interesting benefit from the projects. As mentioned in both under the *Driving Change* and the *Developing Human Capital* sections, hiring students from the projects is valuable, however, one case highlighted an alternative approach to keep the students involved after the project. For the Innovation Lab Manager at an International Component Supplier one of the best-case scenarios would be where the students would create a start-up based on the work they did for the project, and would then become a new partner for the International Component Supplier: “The best-case scenario is, the student are so happy with their own project that they want to create a start-up, and [our company] is so happy with this start-up that they want to invest in it, and it creates a new partnership.”

In summary, the stakeholder relations can be, with a blurry line, divided to two aspects: enabling new, and strengthening old relations. The data showed how there is value in creating new stakeholder relationships, especially through the university network, how creating new stakeholders within existing stakeholder groups, improving relations with existing stakeholder and even creating (not finding) completely new partners. The importance of the sub-category was difficult to judge based on the data.

Conclusion for Stakeholder Understanding and Relations

Overall, while both *Stakeholder Understanding* as well as *New and Improved Stakeholder Relations* emerged from the data to justify the categorization, it was somewhat surprising as to the seemingly low importance demonstrated by the data compared to its importance in the design principles. Based on the data, however, it can be possible that the reason for the low emergence is because they are a means to a different end, such as *Novelty*.

Ecosystem Understanding

Understanding the environments in which the companies operate is an important aspect in doing business. In the data, the benefits of the project courses were divided to two distinct aspects: the overall understanding of the ecosystems and markets they operate in, as well as the unique benefits that come with interacting with the courses which are part of the larger university ecosystems.

Overall, neither of the categories emerged as core aspects of the value judgement, but still held distinct value. Two main insights emerged from the data. First, the role of building understanding is an interesting one since it explicitly seems to have a small impact, but how it might be a means to different ends – a significant contributing factor for enabling other, more concrete value categories. Second, the universities have a unique opportunity to create value to the sponsors through their own industry and university networks, offering the companies unique insight in to what other companies are doing.

Understanding Ecosystems and Markets

The understanding of the ecosystem of actors as well other market aspects emerged as a beneficial aspect in three of the five cases. Overall, the data shows that it serves as a good starting point for internal project and that it is valuable on its own, but also that it is a mean- to-an-end to other values. A distinction between the two was not made because, as shown by the data, the liaisons also made little distinction between them. For example, the Director of Business Development at an International B2B Retail Company used both in very similar contexts while talking about the benefits. They said that they already knew that “there was one *market-area*[emphasis added], which we knew was going through change, and kind of – I don’t know, puberty. But at least going through significant growth and our understanding of the *ecosystem*[emphasis added] that supported it, was weak which meant that we had a hunger to understand it better.”

The data shows how the projects can be used to kick-start internal projects. The Director of Business Development at an International B2B Retail Company explained how the projects can serve as a starting point for their own exploration: “This project is also – for the relevant segment – an introduction on what it is all about. ... so, [our team] can kind of jump on a moving train, and then start improving and deepening their knowledge and understanding in addition to already having one concept idea.”

The data shows how the ecosystem and market understanding is valuable for them on its own. For example, the Senior RnD Manager at a Global Manufacturing Company said that they hoped for the students to “make some statement about this market or this direction that will be the most valuable to [the company].” Similarly, the Product Manager at a Local Retail Company also stated the importance of knowledge of the ecosystem and the market: “[A]nd of course quite a lot of that kind of research and background information and analysis, overall on the current operations and situation.”

On the other hand, the data also showed how the understanding building is important as a means-to-an-end for some other values. The Director of Business Development at an International B2B Retail Company explained how ecosystem understanding is an important foundation for further product design work: “All of us understood that we can’t start designing [our core products], before we understand to where we are designing it for. Otherwise it is decoupled from the ecosystem which the [product] was designed for.”

In summary, the understanding of the Ecosystems and Markets was mentioned by three of the case companies where a certain level of importance was given to the aspects. Yet again, though, an underlying theme emerged, where the value of knowledge and understanding is there as means-to-an-end, to a more concrete outcome. This means that some parts of the value of understanding ecosystems and markets might not be explicitly apparent as they are attributed to more concrete aspects of value, such as under the *Nature of the Concept*.

University Networks Supporting Ecosystem Understanding

Based on the overall data, collaborating with universities provides a few distinct benefits, but this section covers the benefit of the network as a means to benchmark other companies.

In essence, the single form of benefit regarding the university network and ecosystems was related to benchmarking what other companies are working on. For example, the Director of Business Unit at an International B2B Service Provider explained regarding the previous year’s final expo: “I remember the final outcome from last year’s [final expo], ... you could say it was enlightening to know what other companies are doing.”

Similarly, Innovation Lab Founder at an International Component Supplier highlighted the university ecosystems benefit in competitor benchmarking, especially related to their strategy: “I think it’s a good way to keep a communication channel with the [university] network. ... I think it’s also a way to see what’s up with the other [course] projects, other than [our company’s]. ... When you look at student projects like this, you are a little bit of looking at the strategy of other companies, so yeah, I think it’s a good benchmarking opportunity.”

Overall, while the mentions were few in number, the benefit of the university network as a tool to engage with their ecosystems was mentioned explicitly. As this is a unique aspect to the university project courses, it has the potential for differentiation with other consultancy projects.

Conclusions for Ecosystem Understanding

To conclude, understanding the ecosystems and the markets that the companies are in or wish to be in the future, is not an extremely significant categorization, but still emerged from the data as a distinct category. Few interesting aspects emerged: first, the role of building understanding is an interesting one with it explicitly having a small impact, but how it might be a significant contributing factor for enabling other, more concrete value categories. Second, the universities have a unique opportunity to create value to the sponsors through their own industry and university networks, offering the companies unique insight into what other companies are doing.

4.5 Benefits - Other Benefits

There also emerged a few sets of needs that did not fit under the aforementioned categorizations and did not have significant unifying dimensions. These sub-categories were *Inspiration*, *Social Impact* and *Credibility*.

Inspiration

Inspiration emerged on its own as a benefit on its own, for example the Director of Business Unit at an International B2B Service Provider mentioned on a personal level how “it is cool what kind of findings they have so far and what findings they highlight, and like it is somehow very inspiring to listen to them”. Similarly, the Innovation Lab Manager at an International Component Supplier highlighted how he utilizes the inspiration aspect towards the company: “And we made some kind of open doors, and it’s always very nice to organize that in the company, because it inspires people.” Overall, *Inspiration* emerged in two main ways: first through the excitement and energy the students had, and secondly, through the validation that the sponsor received regarding their company and project directions through the students showing appreciation and considering their direction a good one. It is, however, difficult based on the data to evaluate the importance of the value brought by *Inspiration*. This is because the value was seen only in a few cases, but very strongly in them, and also because the value is highly personal and emotional, making it more difficult to rationalize.

Student Excitement and Energy

Working with the student group can be very energizing to the people involved. For example, the Director of Business Development at an International B2B Retail Company mentioned how, when working “and to remind oneself of the excitement, that has over the years and with the growing

cynicism, faded away. ... With the students you are so excited, because their cynicism is smaller and excitement is so high, so it gives you positive energy for myself as well ... it's motivating in many different ways". Similarly, the Director of Business Unit at an International B2B Service Provider experienced the energizing aspects of working with the students: "What I like [about working] with the student group, is the amazing attitude. And it's really great, like exactly as it should be, that one is excited about the topic and in a way feels that the work they are doing is important."

While not present in all of the cases, it seems that especially for the liaisons in the most senior positions, the interaction with the younger and more energetic students is a welcome addition and potentially a significant contributor on an emotional level.

Validation through Student Appreciation

The students showing appreciation towards the sponsoring companies or sponsored projects was appreciated by the liaisons. It was largely seen as validation that the liaisons and/or their companies are going the right way. The data showed delight towards both student appreciation towards the company as well as towards the projects they had brought forward.

Some of the liaisons also gained value through the excitement and both spoken and unspoken appreciation towards their company and project, as it would serve as a validation towards the direction the company is choosing. For example, the Product Manager at a Local Retail Company said in the first interview that the worst-case scenario would be "probably if all the students say that they are not interested at all in collaborating with us. That they would view our company as just [a basic] retail store, which they have no interest to be affiliated with. That would probably be the worst".

Similarly, the influence of the student appreciation can affect not only on the liaison, but on other members of their company. The Director of Business Unit at an International B2B Service Provider explained how positively the liaison and their colleagues reacted when the students told in the final expo that they thought that the sponsoring company were cool and attuned to the times: "Well, it has emerged in many places, not only through me but through others in our company, what the students said in the final event about how cool of a company we are ... like how we are attuned to the times and how we don't always realize that ourselves and we have, how would I say it, some sort of inferiority complex about it to some extent." It is more than likely that this has a strong correlation with the fact that the same sponsor highlighted that employer marketing was one of their core purposes for their participation.

Also, the student appreciation was valuable in validating the direction for the project brief. The Director of Business Unit at an International B2B Service Provider was delighted by the students excitement towards the project topic: “I noticed that one thing that gave me a really good feeling was that we managed to come up with a topic that was meaningful to the students, and to hear and notice that many students were excited [about the possibility] of being in our team. That was really important.”

The appreciation of the students towards the company or the projects the company is working on provides reassurance and validation to the liaisons and their colleagues about the direction and approaches the companies are using. This again showed in only a few of the cases, so while not universally beneficial, once again for those it was relevant for, talked about it with significant weight.

Conclusion for Inspiration

In conclusion, the projects managed to inspire the liaisons and their colleagues in two main ways: through the excitement and energy that the students had as well as the validation for direction that the students’ appreciation brought. However, evaluating the importance of the benefits from inspiration are very complicated for a few reasons. First, the sub-categories seemed to be very dividing, for some of the liaisons they were non-factors and where some emphasized significant benefits from the either the student energy and excitement, or from the students validating that what the company is doing is relevant, or even both. Second, much of the benefits provided are very much on the personal and emotional side, with no explicitly and seemingly concrete or logically justifiable benefits.

Social Impact

The principle of giving back to the society emerged as a value factory both, in a generic form, as well as through *Supporting Education and Learning*. While being a very abstract and loose benefit, it emerged in most of the cases in one form or another, and while it was not a core source of value, it is still arguably a meaningful contributor.

Generic Social Impact

While there was literally one code in the data set that constitutes this sub-categorization, it is such an explicit and significant benefit provider, including that datapoint was relevant. The Innovation Lab

Founder at an International Component Supplier explained in his first interview what has him excited for the upcoming project:

I'm very excited about the topic itself. I'm really looking for a project that can bring positive change in the society and not just create business for the company. So of course, it's an important aspect that we have something to sell at the end and that we make money with this solution. But I would be personally really satisfied only if it brings value to individuals and the society and not just to [our company].

The statement well highlights the personal aspect of value and how no matter what the objective benefits and outcomes for the company are, for their personal value judgement, social impact is critical.

Supporting Education and Learning

As a core, and almost sole contributor to the social impact, the liaisons expressed willingness to support the students learning experiences, even at the cost of other benefits for the company. The data shows the beneficial, largely emotional aspects in supporting the student learning, but on the other hand, also being ready to dismiss unfulfilled value expectations by justifying that the primary purpose of the projects is student learning.

Much of the data on liaisons getting value about providing the students a learning opportunity emerged in an implicit form. They would not directly state that it was valuable for them, but just the fact that they would bring it up and imply positive responses. For example, the Senior RnD Manager at a Global Manufacturing Company explained how the thing they liked most about the process is that it prepped the students better for their future: "What I liked the most about the process, or the engagement, or the real-life factor, or the real industry kind of experience for the students, which is, you literally push them to look at, what are the real problems that the industry faces. So that'll prep them better for their future, right."

Similarly, the Senior RnD Manager at a Global Manufacturing Company reflected how the most memorable moment was when by the end the students the students had grown enough to be independent and they didn't need the liaisons help any more:

Definitely the [final event] because we had a really good, you know, it all came together and we had a really good booth. Like a really- And I think the students were pretty proud, because they had a highly functional prototype. So that was probably the most memorable- And at that point, they didn't need me at all. I mean I was hanging out, but like they really didn't need me. It was their booth, it was their project, it was, you know, they owned the whole thing, so that was pretty cool.

The data also showed how the liaisons were ready to keep it in scope that this is an educational project and that it needed balancing between the student and the company interests. For example, the Senior RnD Manager at a Global Manufacturing Company explained how a good liaison will be respectful of the student interests:

I think a good liaison should be respectful of the [course] process and respectful of the fact that this is - that for the students this is an academic project, this is a course they're taking, so they're learning a process. And that even though as a company we expect - we're expecting some value out of this, the students are in school, they're students. So, we need to be respectful of that.

Similarly, the Director of Business Unit at an International B2B Service Provider addressed the expectations towards these projects as opposed to a consultancy projects, where in a student project the project outcomes might not be good: “Perhaps you go into this project with a bit of a different perspective than if you purchased this from a company, in which case you would not accept that there might not be anything good coming out.”

Furthermore, the Product Manager at a Local Retail Company reflected on the final concept being a bit more abstract than they had hoped by implying that the primary purpose of these projects was the students learning: “As this was our first time in anything like this ... so we had to go a bit more openly into it ... because we couldn't know what the project was for the students, so it was super important that the whole project is kinda for the students.”

In summary, the opportunity to provide learning opportunities is a benefit that creates value overall. It also emerged that the liaisons are willing to overlook the lack of more concrete outcomes of the project for the sake of providing the students a learning opportunity. Overall, the impact of being able offer the students a leaning opportunity is a bit tricky. On one side, there seems to be clear benefits

through positive emotional responses, but on the other hand the rest of the value is hard to evaluate, since it seems to be a counter to unfulfilled value in other forms.

Conclusion for Social Impact

While there was a single mention about generic social impact in this study, most of the social impact focused on supporting the education and learning of the students. Similarly, to *Inspiration*, this is a difficult benefit, as it is difficult to concretely or logically justify, and remains mainly as a personal and in some form emotional benefit for the liaisons themselves. Due to the hard to justify nature of the value category, it might be hard for the liaisons to put into words which then again makes it hard to elaborate on the significance of the benefit. Based on the collected data, it is reasonable to argue, however, that this category has the potential to be a significant contributor to the value of the project. This might be especially true in the projects where the concrete and expected results were not as expected by the liaison, and the idea that at least the students got a good learning experience from the project compensates for it.

Credibility

The inherent benefits and credibility that comes from working with a university emerged in a few of the cases. First, there was a general notion of the benefits of *University Collaboration* and then a more explicit benefit of *Legitimacy* that came along with the collaboration.

University Collaboration

Based on the data, there are inherent benefits with working with a university, however, unfortunately the data does not highlight the more concrete mechanisms of how that collaboration leads to more concrete forms of value. While there is ambiguity regarding the benefit, it still emerged to a significant degree in the data so it was included in the findings. Due to the only concrete value of university collaboration emerging as *Legitimacy*, as highlighted in the following section, the value of *University Collaboration* was grouped with it in the findings.

The data had a number of direct mentions about the value of collaborating with universities.

For example, the Director of Business Development at an International B2B Retail Company stating that their “hunger for university collaboration had grown” and the Director of Business Unit at an International B2B Service Provider stating how “it would be nice to be engaged in collaboration with

[the university]” as well as the Senior RnD Manager at a Global Manufacturing Company “think[s that] just generally engaging in research with academic institutions has a great deal of value”.

Similarly, the Director of Business Development at an International B2B Retail Company also explained how the projects were a way to engage in dialogue with the university: “So, first there was the contacting, and we talked about [collaboration] with [the university], so we saw this [project/course] as way to begin the dialogue with the university.”

While some of those quotes were followed by examples of other course and project related benefits, which have been highlighted in earlier in the findings, the aforementioned quotes hint at the existence of some sort of an inherent benefit, or set of benefits to collaborating with the universities. Unfortunately, the data collected for this thesis does not provide clarity as to what those benefits might be.

Legitimacy

Working with a university course provides the liaisons and/or their companies legitimacy in their context. Furthermore, the university networks offers the companies a forum for demonstrating their capability to build legitimacy.

One of the benefits of collaborating with these courses is through the legitimacy they bring to the liaisons themselves. The Innovation Lab Founder at an International Component Supplier explained this very directly through how their boss used to be the liaison and found legitimacy through the course and collaboration:

So, I think that when he discovered the [university platform running the course], he finally found someone or something that could put words and terminology on his natural way of working in [our company]. And so, he had the feeling that he had always been somehow user-centered and doing user-centered projects. And so, I think he wanted that to become an institution, not just the way he did, because he felt that way, because it gave him some legitimacy in terms of network and kind of methodology in terms of the academic reference that he lacked.

Another benefit of collaboration with the courses is through the legitimacy it brings to the company. In the Global Manufacturing Company, the reputation and the status of the academic universities

grants legitimacy for the collaboration and the company itself, as explained by the Senior RnD Manager: “[W]hen a company like [our company] who has the funds to launch an open innovation program - their first step is to go out and engage with the premium institutions ... Our first two were [another university] and [the course’s university], those were the first two steps. ... it's the prestige”. In a following interview the liaison also highlighted how that: “[M]y assumption is that we wanted to start with an academic partnership. We wanted to start with a high-profile university, so [the course’s university].”

Finally, the data shows how university networks give the companies a forum to demonstrate their capabilities to build credibility. The Senior RnD Manager at a Global Manufacturing Company explained how they can utilize the final expos to demonstrate their thought leadership: “I guess to summarize, the objective- our objective for these projects is to demonstrate thought leadership, of course outside the company, cause people see what goes on in [the course] and all the other companies who are participating are paying attention.”

In other words, the universities and their academic methods have a certain level of legitimacy, which the liaisons and sponsoring companies want to leverage. In addition, the university networks give the companies a forum to demonstrate their capability and, thus, generate credibility. While the legitimacy is a more concrete form of value than just university collaboration, it is still not exactly clear if this legitimacy is a means to a more concrete form of value further down the line.

Conclusion for Credibility

Overall, the whole concept of collaborating with universities and having more legitimacy as an individual or as a company emerged as a benefit for the liaisons, yet there remains a high degree of abstractness of how it transfers to more concrete forms of value. One might theorize, for example, that an individual having a more legitimate backing would allow them to drive change in their organization more thoroughly. However, it did not explicitly emerge from this data.

4.6 Sacrifices

Tangible sacrifices are sacrifices where the cost and its effect can be precisely identified. These include the monetary cost of the projects, the time investments made by company personnel, and other company resources provided for the project. Tangible sacrifices, especially the *Money* and *Time*,

constitute for a clear majority of the perceived sacrifices for the projects. Due to there being only two highly significant sacrifices, they represent potentially a truly huge impact on the overall value judgement, as they balance against all the different forms of benefits provided by the projects. However, as the scope of the project was to identify various forms of value and not to evaluate how impactful they are, it is difficult to say based on the data what the overall significance of each is.

Money

Money

Money includes the direct monetary costs for participating in the project. While in principle the category could include other costs, the only direct monetary costs that emerged from the data was the fee for participating in the projects. As even the cheapest project costs 20,000€ and with the more expensive one being over 100,000€, the monetary investment into these projects was expected to be a significant one. Due to *Money* being one of the two highly significant aspects of the value judgement on the sacrifice, it has a huge potential to sway the overall value judgement. The data showed how local governments can absorb some of the cost, significantly altering the value judgement from the sponsor side. The contextuality and subjectivity of the ‘expensiveness’ of the projects also emerged from the data, as well as two ways in which – if compared to alternatives – the projects are the cheaper option.

In some cases, the sponsoring companies might get subsidies from the government, which can have a significant impact on the cost and, hence, the value judgement. In their country, the government subsidizes companies to develop technologies, as explained by the Innovation Lab Founder at an International Component Supplier, saying that “it’s easy also to work with university and innovation programs, ... [because our company] will only pay a part of the total price, because the government is willing to help companies develop technologies that can have positive impact for the society as a whole”.

There was also a big gap in the perceptions of the costs between the companies, highlighting the contextuality and subjectivity of the value judgement. The Director of Business Unit at an International B2B Service Provider explain that for them a 20,000€ price is a lot: “And then of course there is the price, so I was hesitating because 20,000 euros is a lot of money.” On the other hand, for the Innovation Lab Manager at the International Component Supplier said that the 30-40k€ was not as big of an issue: “I guess it’s not that much.”

The data also showed a few of the reasons why the costs are relatively low. First, the cost of not doing such exploratory projects serves the risk that the companies proceed to much more expensive phases without having the confirmation that it is the right direction. The Innovation Lab Founder at the International Component Supplier explained how the alternative is a 500,000€ investment:

And here, we could spend half a million euro in whatever direction we want, and we would never be sure we are going in the right direction. So first we need just to explore – with a low-budget, quick, agile team – various options. And then, with all the information we gather, we said: “OK, maybe we can afford to spend more on this specific part or on this specific opportunity.”

Second, the cost for the companies themselves to do similar projects can be significantly more expensive. The Innovation Lab Manager at the International Component Supplier explained how the tools available for their company would take a lot more money and time to do:

Quick field feedback that comes with it, that would take much more, much longer, and a lot of time and money for a company like [ours] with all the confidentiality agreements, like hiring some testers, and things like that. Students can just go over that and bring us things that maybe are not as qualitative, but still they are much quicker and they’re very, I’d say they are very valuable material to build upon.

A similar overall cost assessment was shared by the Director of Business Unit at an International B2B Service Provider, who reflected on the difficulty of the topic they gave to the students and how it would have cost many times more with a consultancy: “So, I’m sure the price tag would be many times higher if we would go and do it with an external [consultant].” So, while the liaison in the beginning considered the price of the projects high, the value judgement at the end was that a similar project with a professional consultancy would be significantly higher.

Conclusion for Money

The monetary cost of participating to the projects is mainly focused on the course fee, and it was considered a significant sum for most of the liaisons. One of the 20,000€ investment liaisons did not put significance on the cost for reasons which are not clear in the data, while another one mentioned it in passing by saying it was their boss’s decision and they had little knowledge about it them self.

The liaisons also rationalized the cost by comparing it to the alternatives either within the company, as well as with professional consultants, where in both scenarios the monetary cost of participation was a fraction compared to the alternative.

Time

Time

The time investment from the company personnel was a surprising aspect, not because it emerged from the data, but because of how important the liaisons considered it. While the coding was not done quantitative analysis in mind, it gives a ballpark estimate of the frequency that *Money* was coded 11 times, while *Time* was coded 30 times. One possible explanation is that this is something more prevalent on the day-to-day interactions as compared to money, which is more of a consideration at the beginning. Overall, the time investment was considered big sacrifice in a few of the cases, and even a significant source of concern in one of the cases. The lowest time investments reported were around 2 hours per week, with the most significant time investments being around 10h per week on the projects. There was a direct correlation with the amount of time used by the liaison and price of the project. All of the liaisons, however, saw that the time investment was a necessary part of getting a valuable outcome from these projects. One of the main time investments was the meetings, which all the cases were viewed to be best held every week or bi-weekly.

Throughout the data there was a consensus that these projects take a lot of time, but some liaisons had not expected it and were surprised by the amount. For example, Director of Business Unit at an International B2B Service Provider how the time commitment was even more than they expected at the start: "... it is quite a lot of work to try to arrange meetings with the customers, like find times and try to coordinate [it]. So, this is quite a lot more challenging than expected."

Similarly, the Product Manager at a Local Retail Company discussed it through the inverse by realizing how much time was freed after the project was over: "I feel really good. Like a surprising amount of time was freed up [now that the project ended], so in that sense it's quite good."

On a slightly similar note, the data also showed how for people who are not familiar with how the projects are, it might be difficult to understand the time investment. This could also explain why there were mismatches with expectations and the reality in time usage. The Innovation Lab Manager at an International Component Supplier explain how the presence of staff from the course side does not

remove the need to be involved from the company side: “You need to follow up. There’s this time investment that is inherent to every project that people tend to forget [that] when [they] say like: “They already have their own team and teachers and everything, so they are going to manage it on their own.” Just doesn’t work like that.”

Regardless, the data also showed a strong consensus on how the liaisons need to invest time into managing these projects. The Innovation Lab Manager at an International Component Supplier explained that to succeed you need to put in management effort: “If you wanted to succeed, you need to put some project managing effort inside. You need to follow it and you need also in a company like [ours], where the stakeholders are a bit spread out, it can be, actually, pretty tough to answer some of the basic needs from the students. ... There’s a time cost of that.” Similarly, the Director of Business Unit at an International B2B Service Provider realized that the money investment requires a sufficient time investment as well: “If you put this amount of money in, then you should tie in more of your own resources to the project.”

The data also shows that the time commitment raised some concerns for the liaisons. For example, the Director of Business Unit at an International B2B Service Provider raised concerns for the time commitment the project would require: “Perhaps the time resources are one thing [I am concerned about]. In a way how customer oriented it is, like how much of our time does this take and how easy this [process] has been made for us.”

On a similar note, the time investment was also something that the liaisons had trouble to justifying to others. The Senior RnD Manager at a Global Manufacturing Company explain how they had difficulties getting an engineer’s time investment from within the company and how it is problematic for the projects:

So, where this culture hinders that process is– so I talked about 10 percent of an engineer's time to support the project. That can actually be difficult to get, we can actually have a lot of difficulty getting a small percentage of somebody's time to support the project ... And we see that that plays a role in the [course] projects, the students have got to spend some time under the direction of a subject matter expert in this area.

Overall, with in one case the time concerns made the liaisons re-consider if they could do the project in the future. The Director of Business Unit at an International B2B Service Provider said that: “I would probably consider more the next time, if I have the resources in doing this [kind of project].”

The data also showed some comparisons of the projects time investment with professional consultants, where the professional consultants were considered a lesser time investment. For example, the Director of Business Unit at an International B2B Service Provider discussed about how the project was a “time thief” and that the projects should be made easier for the sponsoring company. They said that the course staff should be “considering that what if it would be a consulting company doing this [instead]”. And when asked if they meant that consulting companies get more done with less input, the liaison responded: “Yes, perhaps they do. Yes.”

Similarly, the Innovation Lab Manager at an International Component Supplier, compared the projects to consulting companies by saying that: “And it’s not just I’m paying a school and students to move forward, and then we meet back in nine month and have an awesome project. It just doesn’t work like that.”

The data also shows that the time involvement expected by the liaisons ranged at an average of a few hours a week for liaisons of the IDBM IP program, while the ME310 liaisons spent around 8-10h a week. While no explicit logic behind this was explicated, it is quite a direct correlation between the course costs and the time investment from the liaisons. The Director of Business Unit at an International B2B Service Provider reflected on the reasonable time investment: “I do think that the two to four hours per week should be enough, otherwise this starts to become too expensive for the sponsors, I think it should really stay at that two to four hours.”

One of the core time investments for the liaisons were the meetings with the student team, and the data showed how the appropriate frequency was either weekly or bi-weekly. For example, the Director of Business Development at an International B2B Retail Company favored a weekly schedule: “[H]ad a meeting with the students every other week. That was added to the calendar automatically, because once it was in the calendar and we met, we always found topics to discuss, ... and I think it was a good procedure”. The Director of Business Unit at an International B2B Service Provider on the other hand met the team on a bi-weekly schedule, but saw that it would have been better to meet weekly: “I would have hoped [to meet] every week, but that was a little too much in

my own schedule.” While on the other hand, the Innovation Lab Manager at an International Component Supplier met with the teams weekly, but was uncertain if that much is needed:

I have no idea if following up every week is actually a good idea. We did that. We made some weekly meetings with the students of these schools, so they could ask us questions and we know what happens because people are always curious inside about how the project goes. I don’t know if weekly is good. I know that in our conclusions, ... bi-weekly meetings with students would be something that would be required if you want really to have something valuable.

Furthermore, in addition to meeting with the teams weekly, there was also a notion that the liaisons should also meet with the teaching team on a monthly schedule. The Innovation Lab Manager at an International Component Supplier explained: “I know that in our conclusions, meeting with students is not enough, as actually meetings with teaching teams, that would be necessary too, but monthly meetings with teacher teams ... would be required if you want to really have something valuable.” Unfortunately, the data does not include more details as to why it is necessary.

Conclusion for Time

The time investment emerged as a significant topic in all of the five cases. The data showed how the projects are a bigger time investment than expected by the liaisons – especially because the time investment is difficult to understand at the start – but that ultimately, the time investment is a mandatory and critical aspect in participating in the projects. The time investment raised concern, was hard to justify, and overall caused the liaisons reconsider if they have the resources to participate. The time investment was considered larger than working with professional consultants. Overall, the liaisons of IDBM IP projects used around 2 hours per week when ME310 liaisons used 8-10 hours per week, which were in correlation with the monetary costs of the projects. Finally, the liaisons felt that it was good to have a meeting with the students on a weekly or bi-weekly schedule, and there was also a suggestion that the liaisons should have a meeting with the teaching staff on a monthly basis.

Furthermore, much like shown in the Money section, there is a significant difference in how the liaisons view time usage. For some liaisons, anything more than 2-4 hours would push the overall value judgement on the negative side, while other liaisons were happy to spend 10 hours or more personally, in addition to other personnel resources pulled in for the projects.

5. Discussion

This chapter of the paper will begin with a section discussing both the theoretical and the practical implications of the findings highlighted in the previous chapter. The next section will then address the limitations of this study, and finally the paper will come to a conclusion highlighting the key findings and implications of this paper, along with ideas for future research.

5.1 Theoretical Implications

The theoretical contribution of this paper is towards the marketing value literature, which was the core literary framework in this research. This paper proposes that a key reason for why the conceptualization of the forms, dimensions, and nature of value is so convoluted is related to how contextual value is. Based on the data gathered for this paper, it is argued that there are dimensions of contextuality in the value judgement beyond what is recognized by existing literature. Furthermore, by utilizing the various natures of value as a foundation into exploration of value in this context, the data also reflects the validity of those natures of value. Contextuality will be addressed on its own in relation to the main literary contribution and the remaining five natures of value will be addressed in the section following it.

Compounded Contextuality

As it was highlighted throughout the literature and as a core premise for this paper, the value judgement is highly dependent on the context. In the literature, contextuality is considered as what can only be called a highly fleeting conceptualization, where it changes between the purchase decision to the consumption, or emerged in specific situations, for example needing an ambulance. The collected data also shows a different form of contextuality that is inherent to the user, essentially the individual's context. When looking at a specific interaction, various forms of value might play a part, including the more fleeting forms of contextuality, as well as the context that each involved party brings to the interaction. The data collected in this paper shows that in, what can only be called compounded context, there are at least three different contexts, or dimensions: one brought to the equation by temporality, one brought by the liaisons and their companies, and one brought by the courses themselves. The notion of multiple contexts compounding is an interesting one as some authors have already considered that contextuality might be the explanation for why there are so many conceptualizations for value (Holbrook & Corfman, 1985; Zeithaml, 1988). The presence of multiple

dimensions of context within each compounded context, furthers the notion of contextuality as a source of the complexity in conceptualizing value.

The core dimension of complexity, as highlighted in the literature, has been temporal. For example, Zeithaml, in discussing the contextuality used the example of value being different in the point of purchase, preparation, and consumption (1988). Similarly, Woodruff's highlighted contextuality in how customers perceive value at the time of purchase and how they perceive it after use. The data supported this idea where the expectations and value in many cases shifted from one form of value to another. For example, the Product Manager at the Local Retail Company was originally looking for some form of product or service outcome, but later on was delighted and implemented a concept that partially redefined their core function.

As exemplified by the temporal nature of contextuality, the conceptualization of contextuality has been very fleeting, or something that is highly situation-specific. However, the data shows another, more permanent form of contextuality, which is inherent to the various parties involved in the interaction. In the scope of this research – in this compounded contextuality – the additional contexts that were involved were brought by the liaisons and – by proxy – the companies, as well as by the courses themselves.

In the contexts brought by the liaisons and companies, it can be seen how within these two courses, essentially none of the five case companies had highly similar compositions of the forms of value within their value judgements. As an example, the Director of Business Unit at an International B2B Service Provider, and their company, were facing a changing legislation, which made a large part of their product portfolio obsolete, and they were looking to get new ideas in to their innovation pipeline, while for the Director of Business Unit at an International B2B Service Provider the core value came from employee marketing and students appreciation of their company.

Finally, there were also discernable contextual differences brought in by the courses. While they were largely similar on the surface – both using human centered design as their core methodology and being interdisciplinary, master's level, project-based courses – the data also showed significant differences the values they were seeking. The ME310 projects focused almost solely on the forms of value that fell under the strategic development section, while the IDBM IP projects found value more evenly between the forms of value under project outcome and the strategic development aggregate dimensions.

Overall, it is more than likely that the needs and contexts that the individual brings into the value judgment are such an inherent part of the consumer value – where the scope is on an individual person’s value judgement – that they are not explicated in the traditional marketing value literature. However, the data from this research shows, that in more complex systems, with multiple stakeholder groups – the students, the course, the liaison, the sponsoring company and more – it is crucial to understand the various contexts each party brings to the interaction, if one aims to understand the value judgement.

The Nature of Value

Based on theory, a broad framework as to what is the nature of value was formed. While the primary purpose of this research was to highlight, in very practical terms, what the various forms of value are in this context, and the role of the theory was to serve as an informed place to start the inquiry, the data collected also sheds some light in to the validity of the proposed natures of value. The role of contextuality in the data was already extensively discussed in the previous segment, but the remaining five will be highlighted here.

Subjective

As all of the data collected was purely subjective, and there was little corroboration of the data from more objective sources, it is extremely difficult to say, based on the data, to which extent the value judgement was purely subjective. However, as both the personal values as well as hedonic values showed in the data – both of which rely on the core premise that the object of inspection is not the company, but the liaison as an individual – it is arguable that there is no absolute value for the company.

Trade-off

The trade-off between the benefits and sacrifices for participating in the projects, was a core premise in the exploration of the value in this paper. While much of the data focused on the benefits side of the equation, sacrifices were also present in the data and it is clear that they both influence the value judgement. While the liaisons discussed both the benefits and the sacrifices individually, explicit discussion on the trade-off nature (e.g. “I wonder if this is worth the price we pay”) was almost non-existent. This is to say, that while they would discuss the benefits and sacrifices, they would rarely discuss about the overall value judgement.

Personal

Personal values (as in personal beliefs and opinions) influencing the value judgment was one of the more surprising elements in the study. The data showed how in multiple cases there were differences between the value the companies were looking for and the value that the liaisons were looking for. This was by far most apparent in the *Driving Change* categorization, which showed how the liaisons believed that the company should change in some direction and the projects helped them drive that change. While it is not apparent based on this data, these gaps in values of the company and the values of the liaisons might be significantly linked to the various contexts at play, and can further emphasize the importance of understanding these key parties, their contexts and their values individually, instead of focusing on the larger organization as a whole.

Hedonic

The data also supported the notion of hedonic value experienced by the liaisons. While it did not explicitly surface as one of the key sources of value, it emerged regularly throughout the data. This was primarily coded into the *Student Excitement and Energy*, where the liaisons felt excited and invigorated working with the students. Similarly, it showed clearly in the form of pride related to the students appreciating the brief or the company's approach (*Validation through Student Appreciation*), and it also showed clearly as delight experienced by the liaisons in supporting the students towards better learning experiences and in creating social impact (both forms of *Social Impact*). The hedonic aspects also showed with lesser frequency throughout the other codes as well. For example, regarding the *Driving Change* the liaisons felt frustration towards company culture vs relief towards the project work on the topic.

Comparative

The comparative nature of value was interestingly strongly tied to the sacrifices part of the value trade-off. Practically all of the discussions where alternative options emerged – anywhere from professional consultants, other courses, or internal processes – the topic was about the time investment or the monetary investment (*Time and Money*). This, along with the fact that the majority of the interviews focused on the benefits side of the value equation, suggests that the various forms of benefits that are derived from the courses are difficult to understand, hard to quantify, abstract, or otherwise difficult to compare with the alternatives.

Summary

In summary, while establishing the validity of the six natures of value that were utilized by this paper was outside of the scope of the research approach, data still shows indicators that they have a varying level of validity. Core natures like subjectivity, trade-off and contextuality, permeated the whole data set. The more complex natures of personal and hedonic also directly contributed a few forms of value, and could be seen as influencing others.

5.2 Practical Implications

As it was highlighted in the *Theoretical Implications* section, value is extremely contextual, in this case through both the courses and the sponsors. While it is difficult to take into consideration all the contexts which the sponsors bring into the picture, the framework presented in this paper captures the subset of those contexts as within the context of the two courses studied in the research. While the data showed discernable differences even between the value provided by the two courses, which – on the larger scale – are very similar, the further the context drifts from the two courses, the less relevant the findings become. This makes it absolutely crucial that the framework provided in this paper serves as a starting point into what the value is for other similar or not so similar courses.

Broad Set of Sponsor Values

The courses primary purpose of providing the students an opportunity to learn the design process, however, as the involvement of real companies is critical to the courses' pedagogical approaches, it is also highly important to consider the companies perspective as well. This also shows in the literature: there is are extensive fields of research on both the design process itself, as well as on the pedagogical approaches, which both can be utilized to ensure excellent education experience for the students. However, the research on the sponsors perspective of these student-run design consultancy projects is effectively non-existent.

From the pedagogical and the student perspective, the course focuses on proposing a concept or a solution by utilizing human centered design processes, which in the terms of this research means both the stakeholder understanding and the project outcome. However, as this data has shown and as is summarized in the figure 4, the project outcome (under the aggregate dimension *Nature of Project Outcomes*) and the stakeholder understanding (under the sub-category *Understanding Stakeholders*), are only a part of the overall value judgement for the liaisons in the sponsoring companies.

This is not only true in the amount of different forms of value the aforementioned aggregate dimension and sub-category covers, but also in the overall influence in the value judgement. While the research did not attempt to quantify the importance of the various forms of value, the data still shows that the liaisons found very significant amounts of value from the various aspects of the *Driving Change* -category and from the *Recruitment* -sub-category. Not recognizing all of the various forms in which the projects can be valuable to the sponsors wastes a huge potential in sponsor acquisition as well as in ensuring a satisfactory value judgement from the projects.

The interesting aspect of much of the potentially overlooked value is highlighted when the findings are contrasted with the Design Ladder (Danish Design Center, 2015). Much of what is the primary purpose of the course – the *Nature of Project Outcomes* and *Understanding Stakeholders* – fits on the Step 3 (*Design as process*) of the ladder, where design is an integral part of the development process. However, a significant amount of value was also attributed to the Step 4 of the Design Ladder (Design as strategy), where the companies were looking into *Exploring and Validating New Industries and Markets*. Aspects such as Developing Design Process Understanding and Creating Change in the Ways of Working and Culture are difficult, since one can make two different arguments where they would fit on the ladder. First, essentially, they reflect to company wanting to jump from a Step 2 (Design as form giving) company to a Step 3 company. On the other hand, having the intention and driving the change for the company to reach higher steps on the design ladder reflects a higher order goal. However, the using the projects to elevate the company from one step another isn't strictly utilizing design as a strategy, and thus it doesn't fit neatly on to the design ladders step 4. Overall, contrasting the findings to the Design Ladder supports the idea that the pedagogical and student perspective – the core focus of the projects – is not enough to fully realize liaison value as they are looking to fulfill higher, strategic goals through the courses.

On a practical note, the course staff has to be extremely aware of – and take part in open communication with the companies about – the values the companies are seeking to gain in their participation to the projects. Based on that, the teaching staff should adjust, emphasize and customize certain aspects of the course on a project by project basis, so that they better fulfill the needs of the sponsor. By doing so transparently, the students will also learn how to adjust and customize the processes in a similar way as they would have to in a professional designer capability, overall leading to a learning experience more authentic to the real working life. Furthermore, by engaging with the sponsors more dynamically, the teaching staff can also better develop the courses over time. The

further parts of this section will highlight some practical suggestions to the development of the courses.

Liaison Focus

As it was established as a core nature of value by the literature and as it has been highlighted throughout this paper, value cannot be considered some absolute truth about the intersection of the courses and the companies, but instead the value judgement is inherently subjective as well as influenced by the personal values. This means that when talking about the sponsor value of the projects, the focus should be on the liaison, as they hold a role accessible to the course staff and students, while having the capability to internally influence how the rest of the company perceives the value of the project. This interaction affects both the project acquisition and the project fulfillment processes.

In more practical terms, the course staff should focus on understanding the value from the perspective of the liaison and convince them of the positive value proposition of participating in the project. Once the liaison is convinced of the potential the courses can offer, the interaction from there onwards is about arming the liaison with for example understanding, arguments, and results for them to be able to advocate for the project and the change they seek to drive within the company. Then, the liaison is uniquely invested and capable in supporting the project to fulfill the value proposition for themselves, as well for other key stakeholders within the company.

Strategic Development

The data showed how the liaisons gained a very significant amount of value from how the projects could support the company in strategic development. The strategic development was highly contextual and it had a different form in almost all of the cases such as changing the company culture, introducing new processes, exploring new markets, and exploring new industries were core areas. Due to the contextuality it is important for the course staff to put active effort in to understanding and accommodating the development the liaison is driving.

Furthermore, the liaisons agency as driver for the strategic development was highly present. A significant amount of added value can be gained by supporting the liaison in driving the change, which might be able to be leveraged for future collaboration or even further financial support.

While the liaisons put a lot of value on the strategic development benefits of the course, the importance of the project outcome should not be understated. While the data overall showed less impact on the various aspects of *Nature of Project Outcome*, it also emerged indirectly in significant frequency under the *Strategic Development* section. The liaisons discussed how the intermediary, as well as final outcomes served as examples to the change they were driving. This implies – as could also be seen also in the rest of the data – how certain forms of value might be a means-to-an-end to other, more concrete, forms of value. For example, for a traditionally B2B company, having a well-founded research, concept and a prototype showing how the company could practically approach a consumer market segment, helps the liaison convince key stakeholders within the company that it is worth investing more into exploring that market segment. The concept itself might get discarded down the line, but it enabled the company to make a better-informed decision about entering a new market segment

On more practical terms, a few suggestions as to how the strategic development could be supported emerged, not strictly from the data, but overall during the research process. First, as mentioned earlier, it is crucial to understand the potential value of the projects for the liaison's context. Overall, though, understanding is not enough and certain actions should be incorporated as a part of the courses. For example, creating a key milestone at the start of the projects for the students, together with the liaisons, discuss, understand and explicate the purpose of the project from the sponsors side. This should be supported by the course staff to ensure that they capture broad set of values. The following section on Novelty, Validity and Concreteness suggests one method for ensuring deeper understanding, and the findings of this paper also provide a good starting point for the discussion.

Second, as an educational institution, the course has a unique opportunity to give the liaisons to develop their own knowhow both for personal development and to support the project. On the simplest level, advising the liaisons on how to manage a design process can significantly help the students should be a core part of the course. For example, creating a guide booklet for the liaisons about the process used, the different phases, and what kinds of feedback is beneficial in those phases will ensure that the liaisons can collaborate with the students in a constructive way and at the same time can also help them develop their design process understanding. For more advanced approaches, a form of executive learning can be added on top of the course, where few times a year, the course staff will leverage the same knowhow they use for teaching the courses to host training on for example, how to manage a design process. Taking the idea even further, the course staff can leverage a wider set of knowhows to provide teaching on other valuable topics. For example, the staff of the

IDBM IP course also teach about organizational change, so hosting a half a day or a full day executive education training for the liaisons on the topic would add very little preparation work. Overall, conducting the trainings can ensure a better experience for the students and the liaisons, as well as potentially generating cash flow for the courses to overcome the costs of running such course.

Project Outcome: Novelty, Validity, Concreteness

As it was highlighted in the previous section, while higher order strategic values are significantly present in the value judgement of the liaisons, the project outcome is still at the core of what makes these courses valuable for the liaison both through inherent value as well as a means to an end for the other forms of value. However, the data showed that there is a significant difficulty in communicating the expectations towards the project outcome at the start of the project. In the interviews at the start of the projects, the liaisons explicated that they wanted products, services, ideas, concepts, sometimes even in the same sentence and with little distinction or capability to express what is the underlying value. Through the later interviews, when the liaisons had preliminary outcomes to reflect upon, the actual forms of value started to emerge. For example, the liaisons would explain how they had hoped for something a little more concrete and actionable instead of a wild idea, while another one would explain how they do not need the students to make highly sophisticated prototypes, but demonstrate outside of the box thinking or thought leadership. Based on the data, three core aspects emerged as was already highlighted in the findings section: Novelty, Validity and Concreteness.

A novel project outcome is something completely new, original, even unexpected, and it represents the out-of-the-box thinking. The sponsors expect ideas and concepts that are something they had not thought about or would not have come up with themselves. Based on the data, the main contributor for the novelty is the student's fresh perspective into the context of the company and the industry, where they would not be limited by the same notions, assumptions and paradigms as the company or even external consultants.

The validity is the extent at which the project outcome has been shown to be true and being in line with the reality. There are two main ways in which the outcome can gain validity. First, the concept can be well founded by work that happened before the conceptualization of any single idea, mainly through research such as user interviews, desk research, and market research. Second, the concept can be validated after the conceptualization of any single idea through various forms of prototyping

and user testing. The data heavily leaned on and was coded based on the design process, where the focus is on user desirability, technological feasibility, and business viability.

Concreteness the descriptor of how real and ready the concept is. Concreteness can mean physical realness through a highly functioning prototype, but it can also indicate a thoroughly thought out or well-defined concept. The data showed that the outcome can be concrete even though it has no functional form, if the concept is well defined through, for example, through design specifications, constraints, next steps, and discarded directions. Furthermore, the data also showed value in the concept being concrete so that the company can realize and/or commercialize it quickly.

While at the first glance a (potential) liaison might look at the three descriptors for project outcomes and consider them all important for a valuable project, they are unfortunately at a conflict with each other due to resources. Each of the natures of project outcomes require a time investment from the students to make it happen, making the question essentially about prioritization. The data also supported this idea, where the liaisons would compare that they would prefer one aspect over another.

Once again, the context of the company was a significant contributor to the value that was experienced in each of the cases, for example, an engineering focused company would put little value on the concept being concrete because they have the engineering knowhow in house, and they would instead value well-founded novel ideas to explore. On the other hand, there would be the retail company, which had little resources for R&D and where the value would be highly connected if the final concept was highly defined and quick to implement.

As a more practical suggestion, the course staff, the students and the companies should discuss and explicate a priority for the three natures of project outcomes for the project. The easiest way is to simply order them from the most important to least important. This has the risk of not highlighting the relative importance of the three, for example the three might be very close, with only small differences setting them apart, or it might be that the company does not care at all about one of the aspects and the focus is on the other two. A more in-depth way is to allocate 10 points to the three natures as they wish where they can heavily emphasize one or two while ignoring the third, or they can even them out but still being prevented from doing an even divide.

Sponsor Workload

While so far, the discussion has focused on the benefits side of the trade-off, there are significant implications regarding the liaison's workload. The data showed how for the liaisons, the time was felt as a highly significant sacrifice, potentially even more so than the monetary sacrifices. Two main reasons for the large workload emerged from the data. First, while the data does not show it explicitly, the exploratory nature of the projects contributes to the workload, which shows in for example the weekly and bi-weekly meetings, which is more akin to collaborative exploratory work, than a traditional consultancy project. Second, the students lack of experience contributes to inefficient time usage, by not preparing sufficiently for the meetings.

Based on the findings an important job for the liaisons is to connect the students to various stakeholders anywhere from in-house experts, users, customers, partners, and other key stakeholders, which overall, required a lot of manhours to make happen, especially if the liaison is in a senior position in the company. At the same time, much of the value of the project comes from exploratory, strategic work. Essentially the liaisons have two roles. The first one is a role where they have to be able to rally the support for and drive the change explored by the project, while the other role requires significant time investment, where they need to devote more time to make all the connections between the students and the key stakeholders. In a few of the cases, where the project was housed under an Innovation or R&D unit, a single liaison seemed to be able to manage both roles. Few of the other cases showed a need for two liaisons: one more senior who can manage the project strategically, while the other liaison, in a more junior position could invest in the hours to create connections for the students. Practically this means that both the liaisons and the course staff need to be aware and open about the time investment this course is to the liaisons, and also about the two liaison roles than need to be covered within the sponsoring company.

The data showed how the student-liaisons meetings were poorly prepared for either with the approval of the liaison and at times at their dismay. In either case, it is important, but especially for the situations where the lack of preparation was looked in an unfavorable light, it is critical that the students understand and learn how to conduct professional meetings. Having a set of questions as well as an agenda delivered to the liaison sufficiently in advance allows them to prepare and seek for the answers for the students. This lines up well with the finding that one of the main jobs for the liaisons is to connect the students with experts within the company, customers, users, and other key stakeholders. By letting the liaison pull from these resources before the meeting would lead to better quality interactions between the students and the sponsoring company. While professional behavior

might be expected from the students, the data shows that there is a need for further support for the students to be able to act professionally.

5.3. Limitations

The research had a few significant limitations, namely the small sample size, and the bias from the author. Furthermore, while not limitations to the research itself, there were a few limitations as to the usefulness of the results, namely the highly contextual and poorly generalizable nature of the results, the comparative measure of the importance of the various forms of value, and the in-depth underlying value where the proposed forms of value seemed intermediary.

Due to the availability of research subjects, the sample size was heavily constrained. Overall, while insightful results were attained, it was clear that conceptual saturation and wholeness was not achieved in this research. Furthermore, due to the availability of research subjects, the study heavily utilized convenience sampling, creating an undeniable bias in the sample. As discussed in the methodology section, the bias is towards cases where the university-company relationship was strong and previous beneficial value judgements were present as well as for liaisons that are highly invested in the projects. This bias emphasizes the benefits (as opposed to sacrifices) in the results, as well as active liaison participation in the project. On the other hand, the bias also leads to a sample and data set that is likely to reflect the best practices regarding sponsor value, which is beneficial with a limited sample size.

Due to the highly contextual nature of value, the results loose relevance the further one's context separates from the two courses studied. Even within the research, differences between the forms of value between the courses emerged, where for example the higher cost ME310 courses focused on more strategic values, when the IDBM had a more even spread, which highlights the quickly diminishing generalizability of the results.

Furthermore, as the study focused on uncovering a wide variety of forms of value, the relative importance of all of the forms of value surfaced. While understanding all of the possible forms of value helps the different stakeholders to be aware of and explore it within their own course or company, the data provides only a weak explanation as to which of all the forms of value are significant for the sponsors, and inherently calls for further research or exploration.

Finally, the data raised questions regarding to some forms of value which seemed like means-to-an-end, more so than inherently valuable on their own. While general assumptions can be made, the data provides little answers as to which of the forms are inherently valuable and which ones are intermediary. This compounds and/or influences the understanding of which forms of value are significant to the liaisons, as described in the previous paragraph.

5.4 Conclusion and Further Research

This paper has highlighted how companies are looking to navigate an increasingly complex economic landscape and are looking towards design to do so. However, while research shows how investing in design is beneficial for companies, the current research is struggling to explain how exactly that value forms. The broader value literature, largely under the field of marketing, has had an active discourse on the topic for over three decades. Still, to this date, meaningful consensus has not been reached on the topic. There are both simple, uni-dimensional theories that reach wide acceptance, but fail to explain value in anything but the highest level of abstraction, as well as more complex, multi-dimensional theories that explain value in a more nuanced way, but which face many non-complementary and competing theories, few of which have received wider acceptance. Even the ones that have more acceptance, remain on a level of abstraction that makes them impractical for pragmatic uses. Some authors posit that this is due to the high contextuality of value, as in the concrete forms of value are highly tied to the situation, time, and frame of reference. The purpose of this study was to examine pragmatically, what is the value for the sponsors of project-based design courses as, despite decades of history, there has been little structured exploration into what are the benefits and sacrifices for the sponsors to participate in these courses. Therefore, the research question is: “What are the various benefits and sacrifices as perceived by the liaisons of the sponsoring companies of project-based design courses?” This question was approached through an abductive research where, due to the subjective nature of value, the liaisons of the sponsoring companies were interviewed to understand various forms of value as perceived by the liaisons and the sponsoring companies.

From a practical perspective, the study highlighted a wide variety of different forms of value within the context. The emerged benefits were in areas such as liaisons using the projects to drive change within their companies, the kinds of beneficial project outcomes, and understanding their stakeholders and ecosystems. The emerged sacrifices were mainly related to the monetary cost for sponsoring the project as well as the surprisingly heavy time investment required. By being more aware and better

understanding the value constructs around these courses, the course staff can better communicate with the students and company representatives, as well as develop the courses in a direction that is more beneficial to the companies, ultimately also leading to a more realistic learning experience for the students. From the sponsoring companies' perspective, understanding the different forms of value that they might gain themselves but might not yet be aware of, as well as the forms of value that other companies are gaining from these projects, should help them to reach a better overall outcome. For the liaisons within the companies, understanding the different ways in which the projects can help them or their companies, is critical both to ensure that the value is realized, as well as to be able to justify the value of participating in the courses. Especially, the companies and liaisons should be aware of the higher levels of value, such as being able to use the projects to drive change towards new market opportunities as well as towards more design-centric approaches.

From a theoretical perspective, the study brought to question the nature of the contextuality of value, where in the traditional literature it has been considered heavily time or situation related. The data in this research suggests, however, that in more complicated value systems, with multiple stakeholders, the individual context that each stakeholder brings further adds dimensions to the compounded contextuality of the overall value judgement, further explaining why universal, yet still pragmatic theorizations for value are absent.

Regarding the validity of the study there are two core limiting aspects. First, due to the contextuality of value, the results are highly bound to the context in which the research was done, and broader generalizations are complicated. Second, the research was limited in the sampling in the number of interviews and through the convenience bias, meaning that it is highly unlikely that conceptual saturation was reached, and further data collection would likely result in more forms of value emerging. While both of the core limitations diminish the generalizability of the results, neither of them undermines the validity of the results within the scope.

Based on the results of this paper, future research has a number of interesting directions to explore. First, the data collected for this paper has been extremely narrow and data saturation was most certainly not reached. By extending the research to a wider sample size, and without the burden of doing a longitudinal study, a more comprehensive conceptualization of value within this context could be reached. Second, this paper focused on uncovering a wide variety of forms of value, however a consistent question that kept coming up was the significance of the various forms of value. Exploring the importance of the various forms of value would have significant pragmatic significance

by allowing the stakeholders to focus on the most relevant aspects. Third, in addition to answering ‘what’ values are present, a similar exploration in to the processes that support or hinder the formation of the value, would begin answering the ‘how’ question in improving the overall value judgements. Fourth, while not in the scope of the research, the contextuality of value emerged as an interesting aspect possibly explaining the difficulties within the academic community in explaining value in a universal form. Further exploration as to the contextuality of value could help in defining to what extent a universal theorization of value is even possible.

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7. Appendices

Appendix A – First Interview Questions

Context

- Briefly describe what your company / branch of company does.
- Can you describe your role in [company]?
- How long have you been in [company]?

Initiation/Expectation (Current Project)

- How did your company hear about ME310 in the first place?
 - Who initiated the involvement in ME310?
 - How were you chosen as the liaison?
- What kind of a situation/need in [company] is your ME310 participation solving?
- Why did you join?
- How did you choose the topic for the project?
- What is your involvement in the project?
- What kinds of resources are your company putting in to ME310?
 - (how often in contact)
 - How do they influence (provide resources / co-creation / etc)
 - Tärkeit vaiheet/palaverit/workshopit
 - Miten olette tehneet yhteistyötä?
 - Vakkari palaverien arvo?
- Why did you/[company] go with a student project/ME310 instead of a ~~consultancy~~?-Other options
- What concerns did you have towards your participation in the ME310 project?

Critical Incident (Current or Previous Project)

- What is a moment/aspect of ME310 which you pitch in your company?
- What is a moment when you learned the most during the project?
- What is the most memorable moment related to ME310?

How do you sell this forward in your company?

Value (Current Project)

- At the beginning of the project, what value did you expect ME310 to provide to
 - your company?
 - you personally?
- What value has this years project provided to

- your company?
 - you personally?
- What value do you expect the project to bring to
 - your company?
 - you personally?

Concrete Actions (Previous Project)

- You were a liaison for an ME310 project previously. Can you describe what has happened since? (Open question to see what they prioritise)
 - Was the concept taken forward?
 - Has there been a change in how you operate in [company]?
 - Did you hire any of the students?

Concrete actions based on this project?

(talked to who, things changed, etc?)

Appendix B – Second Interview Questions

Context:

Name, Job Title, Company, ME310 or SUGAR, nth time participating

Themes:

Key Communication Moments

Benefits

Costs

Expectations

Journey:

- How is the project going currently?
- How did you/your company originally run in to ME310/SUGAR?
 - Company or Individual
- Previous ME310/SUGAR projects
 -
- How did the situation progress in to deciding to do a ME310/SUGAR project (this year)?
 - What was the communication with the universities? What did they sell?
 - Who did you originally talk with in your company? What did you discuss?
 - Who was able to sign off on the resources? How did you convince?
 - Other stakeholders you talked to? Why? What did you discuss?
 - What were the key points that convinced X or Y to do the project?
- What do you expect your input to be in terms of
 - Money
 - Time
 - Other company resources (other departments aid, products, etc)
- Why are you/your company engaging in ME310/SUGAR? What do you expect to get out of it?
 - Big picture
 - Also in practice
 - What actions are you able to take because of ME310?)

Other topics, if not covered earlier:

Personal gain/benefit

Was there anything surprising during the process so far?

What is the worst case scenario for the project?

What is the best case scenario for the project?

Is there anything that makes you excited about the project right now?

Appendix C – Third Interview Questions

General follow-ups

Why

How have you communicated it within the company?

Warmup

Kesä

Projekti on ohi, miltä nyt tuntuu?

Tärkeää olla hyvin rehellinen ja avoin. Tottakai ruusut, mutta risut hyvin tärkeitä.

Core

[Match Expectations] Miten projekti mielestäsi meni?

- **Vastasiko projekti odotuksia?**

[Match Expectations] **Mitä yllättävää tai odottamatonta projektin aikana tapahtui**

- Esim. lopputulos, prosessi, etc?
- Oliko se hyvä vai huono juttu
- Miksi se oli arvokasta

[Benefit] **Kerro milloin älysit, että tästä olisi jotain hyödyllistä?**

[Value] Miten te olette kommunikoineet projektista yrityksen sisällä?

[Benefit] **Mitä te olette tehneet jo projektin seurauksena?**

[Benefit] **Minkälaisia suunnitelmia teillä on syntynyt projektin takia?**

- Joko suoraan tuloksen pohjalta tai epäsuorasti sen seurauksena

[Benefit] Onko teillä muuttunut jokin toimintatapa projektin aikana/sen jälkeen?

[Benefit] Onko teillä nyt jotain uusia prosesseja projektin takia?

[Benefit] Onko teillä muuttunut näkemys asioihin projektin aikana/sen jälkeen?

[Cost] **Mitä kustannuksia teille on syntynyt projektin takia?**

- Raha, työvoima, muut resurssit

[Value of Student/Process] **Onko teillä kokemusta ammattikonsultti-projektien toteuttamisesta?**

- Mitä eroa koitte opiskelijoiden vs ammattilaisten kanssa?
- Oliko opiskelijoista jotain erilaista arvoa?
- Jäikö jotain puuttumaan opiskelijoitten kanssa?

Supervisor

[Process] **Mikä on jokin yksi asia joka käytännössä hyvin tukenut yhteistyötä opiskelijoiden kanssa?**

- Käytännössä, miten yhteistyö opiskelijoiden kanssa on tapahtunut?

[Match expectations] Olen kysynyt ennen best ja worst case scenarioiden suhteen. Päädyimmekö nyt lähemmäksi yhtä tai toista?

Summary/Open Answer

Oletteko nyt innostuneita jostain projektin esiintuomasta asiasta?

Tekisittekö projektin uudestaan tulevina vuosina

- Miksi?

Onko sinulla vielä jotain kommentoitavaa yleisesti siitä miten arvokas projekti on ollut tai siitä miten se käytännössä on toiminut?